SHOUT
SHARE
IT

LIBRARIES SMITHSONIAN INSTITUTION
TION LIBRARIES SMITHSONIAN INSTITUT
LIBRARIES SMITHSONIAN INSTITUTION
TION LIBRARIES SMITHSONIAN INSTITUT
LIBRARIES SMITHSONIAN INSTITUTION
TION LIBRARIES SMITHSONIAN INSTITUT
LIBRARIES SMITHSONIAN INSTITUTION
TION LIBRARIES SMITHSONIAN INSTITUT
LIBRARIES SMITHSONIAN INSTITUTION

SMITHSONIAN INSTITUTION LIBRARIES

20/-

MAGAZINE OF BOTANY.

PAXTON'S

MAGAZINE OF BOTANY,

AND

REGISTER OF FLOWERING PLANTS.

"Flowers of all hue."

VOLUME THE FOURTEENTH.

51,568

LONDON:
PUBLISHED FOR THE PROPRIETORS,
BY WILLIAM S. ORR & CO., PATERNOSTER ROW.

MDCCCXLVIII.

LONDON:
BRADBURY AND EVANS, PRINTERS, WHITEFRIARS.

QK
1
P342
V.14, C.1
SCNHRB

TO THE

MARCHIONESS OF LONDONDERRY,

WHO,

IN ADDITION TO THE MOST BRILLIANT ACCOMPLISHMENTS, AND A HIGHLY REFINED TASTE,
HAS EVER EXHIBITED AN ARDENT ATTACHMENT TO PLANTS,

This Fourteenth Volume

OF

THE MAGAZINE OF BOTANY

IS,

BY HER LADYSHIP'S KIND PERMISSION,

MOST RESPECTFULLY DEDICATED,

BY

HER GRATEFUL AND MOST OBEDIENT SERVANT,

JOSEPH PAXTON.

ADVERTISEMENT.

The labours of another year are over, and Fourteen Volumes of our Magazine have, with an almost unprecedented interest, been widely circulated throughout the world. From the scientific nature of a Botanical work, our most sanguine hopes could scarcely have warranted us to anticipate anything like the success, which has regularly attended our monthly labours during the last fourteen years; and that this interest in Botanical pursuits is not on the decline is obvious: Botanical collectors, more numerous than ever, are dispatched to almost every part of the world, and vast forest tracts, previously perhaps untrodden by a human foot, are in the course of being explored; vegetable treasures, which for ages have blown unseen, are daily reaching our shores, and occupying our gardens and glasshouses; scientific gardens are also being established in remote regions, and young men, previously prepared in the highest establishments of our country, are sent out to fill situations which in future years, with the facilities of communication we even at present possess, may effect for the world benefits which can now be scarcely calculated. The press teems with Botanical intelligence, and our own Magazine, we are happy to say, has received during the past year a steady increase of subscribers.

Without the danger of being considered ostentatious, we may venture to say that the style of the present volume, if not superior, is at least equal to any that have preceded it; the plates are finished in a very superior manner, and the subjects have been so selected, that individuals possessing only ordinary apparatus, may grow many of them to as great, or even greater perfection than the specimens from which our drawings were made; these, to say the least of them, serve to show what rapid advances have of late years been made by practical men in the art as well as the science of Floriculture.

In the present volume scientific subjects occupy a prominent position. Amongst these may be mentioned articles on Temperature, Meteorology, Characteristics of the Seasons, Winter Repose of Plants, and Functions of Foliage. The practical directions also are liberally interspersed, especially relative to such plants as are considered difficult to cultivate; indeed, it has been our aim to blend Science and Art so intimately together that reasons for every direction will be apparent to all our readers. And as it is our earnest wish to maintain inviolable that good feeling and mutual understanding which has for so many years been established, we shall always feel the greatest pleasure in availing ourselves of every facility for rendering the "Magazine of Botany" still more extensively useful: and thus relying upon a continuation of the kindness which has hitherto been so liberally bestowed, we again commence our labours with renewed energy and delight.

CHATSWORTH,
December 20*th*, 1847.

LATIN INDEX

TO

THE COLOURED FIGURES OF PLANTS.

Acineta Barkeri, 145
Aerides virens, 197
Æschynanthus speciosus, 199
Androsace lanuginosa, 50
Anemone Japonica, 25
Asystasia Coromandeliana, 125

Begonia fuchsioides, 217
Bignonia Chamberlaynii, 3
Buddleya Lindleyana, 5

Camellia Japonica, *var.* miniata, 169
Cereus grandiflorus Maynardi, 75
Cestrum aurantiacum, 77
Chirita sinensis, 243
Clematis tubulosa, 31
Cœlogyne præcox, 7
Corræas, Gaines's seedlings, 147
Crowea latifolia, 222
Cuphea miniata, 101

Dianthus Hendersonianus, 126

Epacris Tauntoniensis, 195
Eranthemum strictum, 171

Galeandra Baueri, 49
Gompholobium barbigerum, 221

Habrothamnus fasciculatus, 193
Heliophila trifida, 219

Ixora Javanica, 265

Lagerstrœmia elegans, 269
— Indica, 269
Leianthus nigrescens, 149
Lemonia spectabilis, 73
Leschenaultia arcuata, 246
— splendens, 245

Oncidium Barkeri, 97

Passiflora kermesina Lemicheziana, 151
Pentstemon McEwani, 174
Phlox Leopoldiana, 266
Plumbago Larpentæ, 267
Porphyrocoma lanceolata, 53
Pterostigma grandiflorum, 74

Raphistemma pulchellum, 27
Rhododendron arboreum Paxtoni, 99
Rigidella orthantha, 121
Ruellia macrophylla, 29

Scilla bifolia, 100
— Sibirica, 100
Sobralia macrantha splendens, 241
Stenocarpus Cunninghami, 1

Tigridia conchiflora Watkinsoni, 51
Tropœolum speciosum, 173

Viminaria denudata, 123

Weigela rosea, 247

ENGLISH INDEX

TO

THE COLOURED FIGURES OF PLANTS.

Acineta, Mr. Barker's, 145
Æschynanthus, showy, 199
Air-plant, dark-green leaved, 197
Androsace, shaggy-leaved, 50
Anemone, Japanese, 25
Asystasia, Coromandel, 125

Begonia, Fuchsia-like, 217
Buddleya, Dr. Lindley's, 5

Camellia, vermilion-flowered, Japan, 169
Casque-wort, Bauer's, 49
Cereus, Lady Maynard's great-flowered, 75
Cestrum, orange-coloured, 77
Chirita, Chinese, 243
Cœlogyne, early-flowering, 7
Corræas, Gaines's seedlings, 147
Crowea, broad-leaved, 222
Cuphea, vermilion-flowered, 101

Epacris, Taunton hybrid, 195
Eranthemum, upright, 171

Gompholobium, bearded-keeled, 221

Habrothamnus, cluster-flowered, 193

Indian Cress, showy, 173
Ixora, Java, 265

Lagerstrœmia, elegant, 269
— Indian, 269
Lead-wort, Lady Larpent's, 267
Leianthus, black-flowered, 149
Lemonia, showy, 73
Leschenaultia, drooping, 246
— splendid, 245

Oncidium, Mr. Barker's, 97

Passion-flower, Lemichez's crimson, 151
Pentstemon, McEwan's hybrid, 174
Phlox, King Leopold, 266
Pink, Mr. Henderson's, 126
Porphyrocoma, lance-leaved, 53

Raphistemma, pretty, 27
Rhododendron, Mr. Paxton's tree, 99
Ruellia, large-leaved, 29
Rush-broom, leafless, 123

Sobralia, splendid large-flowering, 241
Squill, Siberian, 100
— two-leaved, 100
Stenocarpus, Mr. Cunningham's, 1
Stiff-stalk, upright-flowered, 121
Suncress, trifid, 219

Tiger-flower, Watkinson's shell, 51
Trumpet-flower, Mr. Chamberlayne's, 3

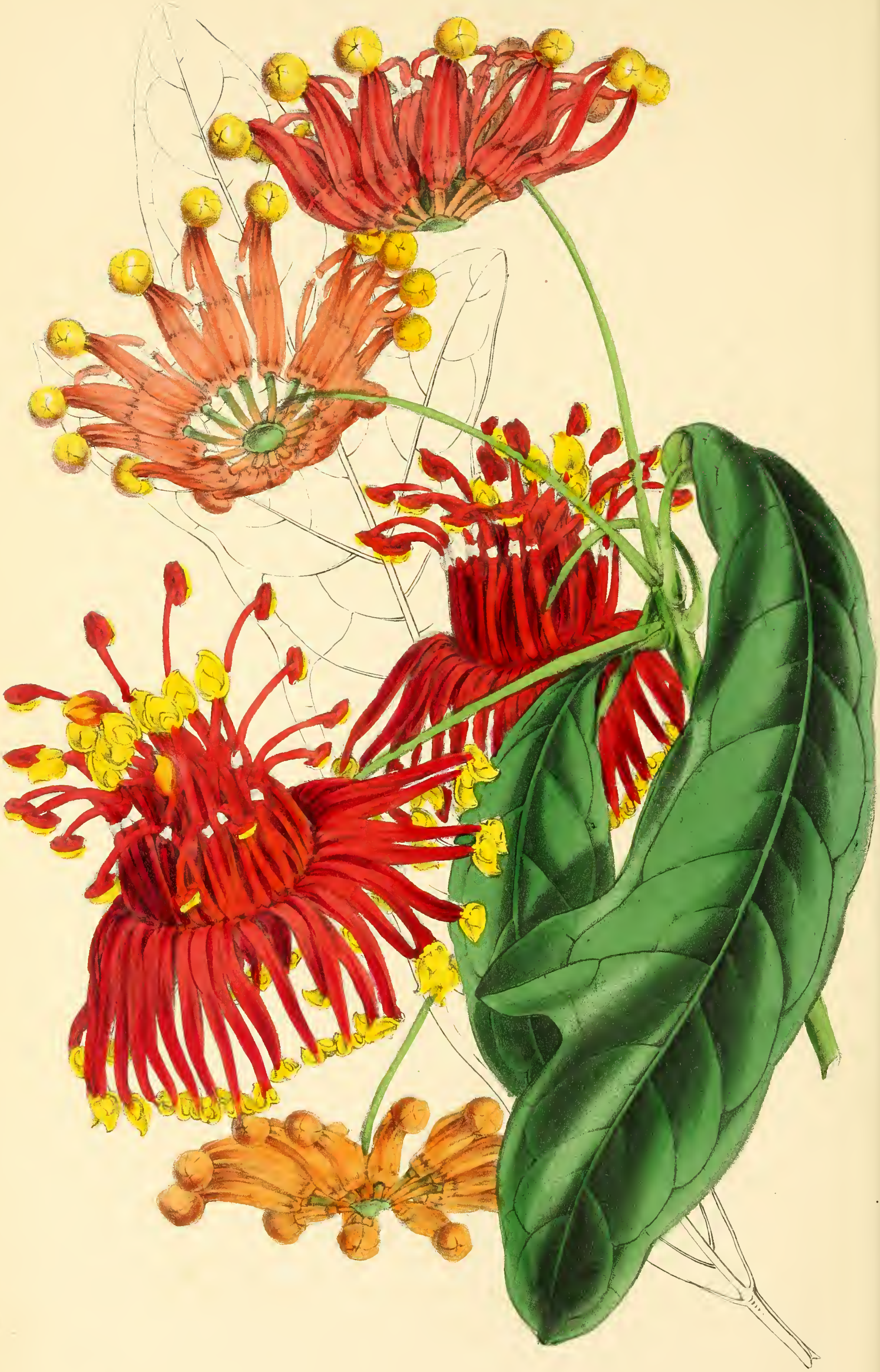
Virgin's Bower, tubular-flowered, 31

Weigela, rose-flowered, 247
Wind-flower, Japanese, 25
Wing-point, large-flowered, 75

WOODCUT ILLUSTRATIONS.

VOLUME THE FOURTEENTH.

Acineta Barkeri, 146
Anemone Japonica, 26
Begonia fuchsioides, 218
Clematis tubulosa, 32
Ixora grandiflora, 183
Modification of Polmaise heating, 79, 253
Oncidium Barkeri, 98
Plumbago Larpentæ, 268
Porphyrocoma lanceolata, 54
Sobralia macrantha splendens, 242



S. Holden del. & Lith.

Stenocarpus Cunninghami.

STENOCÁRPUS CUNNINGHÀMI.

(Mr. Cunningham's Stenocarpus.)

Class.
TETRANDRIA.

Order.
MONOGYNIA.

Natural Order.
PROTEÀCEÆ.

Generic Character.—*Leaves* alternate, quite entire. *Flowers* produced in axillary or terminal pedunculated umbels, ochreous or orange-coloured. *Perianthium* irregular, composed of distinct secund leaves. *Stamens* immerged in the hollow of the leaves of the perianthium. Glands hypogynous, consisting of one principal semi-annular process. *Ovarium* pedicelled, many-seeded. *Style* deciduous. *Stigma* oblique, orbicularly dilated, plain. *Follicle* linear. *Seeds* winged at the base.

Specific Character.—*Plant* a small evergreen tree. *Leaves* large, obovate, lanceolate, entire, sinuated, pinnatifid. *Umbel* compound. *Flowers* silk orange-coloured.—*Bot. Mag.*

Synonyme.—*Agnostus sinuata.*

What was said respecting *Agnostus sinuata* in the last volume, will have led to the supposition that the plant which bore that name is no ordinary one; and indeed it is not, for its inflorescence is of the most singular beauty. Since we wrote that notice, *Stenocarpus Cunninghami* has been published as its name, by Sir W. Hooker, who had the honour of naming the species. Sir William's character is adopted above, and his further account of it introduced at page 21.

Next to the extraordinary structure of the strikingly beautiful floral organization of our plant, the surprising variation in the foliage of different cultivated specimens is the most remarkable feature in its character. Naturally, the leaves are pinnatifid, eighteen inches and upwards in length: and the same is the case with those produced under culture, where the plants have abundant root-room. But so widely different is the shape and size of the leaves of plants which have limited space to root in, that it is difficult to believe they are the same species. Many leaves of such plants have no sinuations whatever, and the majority but few, while in size neither are much larger than the pinnæ or lobes of those borne by plants having ample root-room.

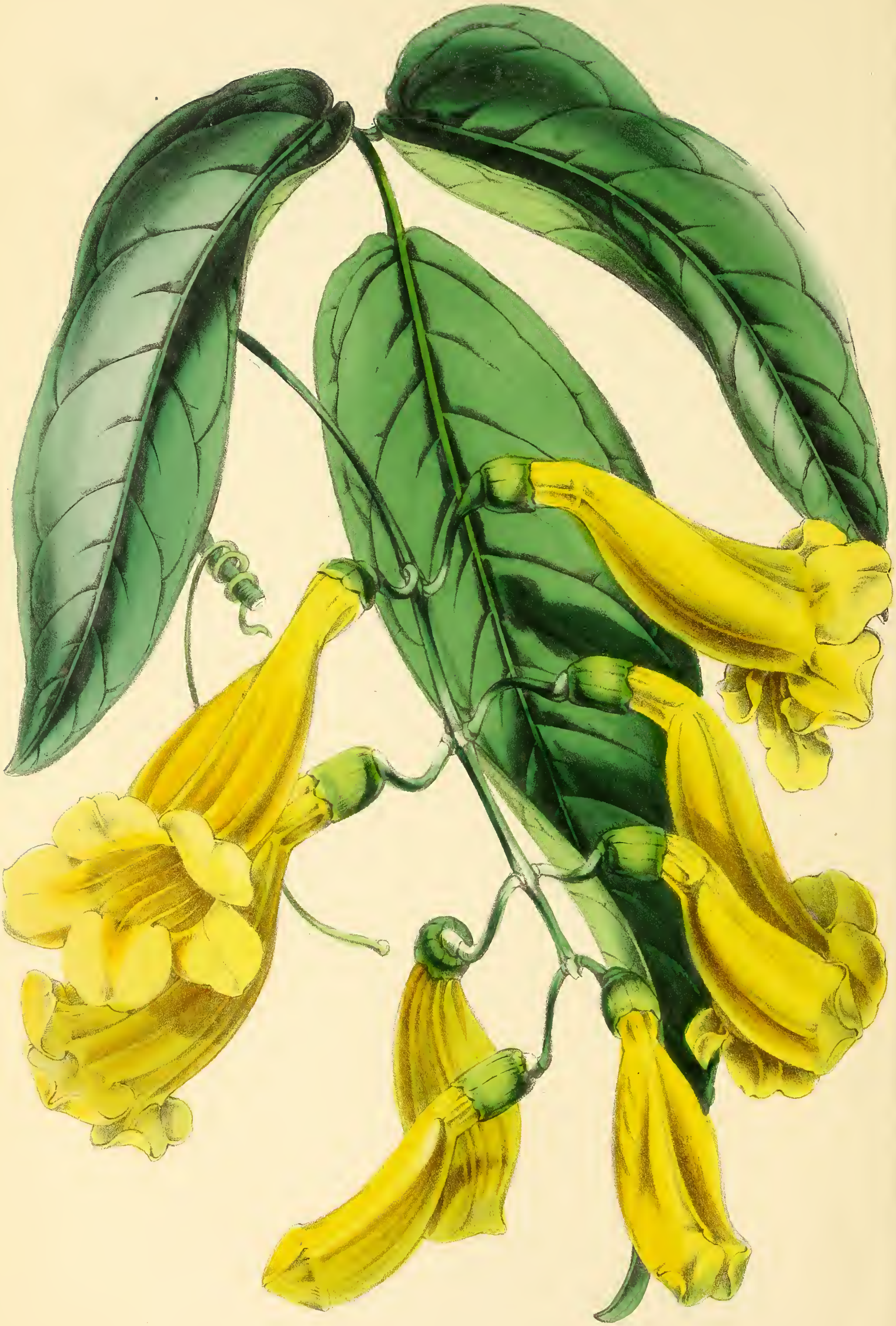
Two specimens, produced under the above cramped culture were last autumn, clothed with leaves of small dimensions. One of these—a plant in the "United Gardeners' Nursery," King's-road, Chelsea—was the first to bloom, and from it our drawing was taken; this had been long growing in a pot much too small for the plant, and had been severely pruned and placed in a stove, where it burst into flower. The other was also comparatively confined at its roots, and had been for a long time experiencing injudicious treatment. Under different circumstances our Chatsworth plant flowered, in a splendid manner, producing its blossoms upon the oldest as well as the young wood.

Our plate very satisfactorily shows the splendour of the inflorescence; but the specimen represented was hardly an average one, nor will so limited a space allow such to be portrayed. The portions of inflorescence growing from the axils of the leaves and on the old wood from where they had fallen, are very freely borne, and vary in the number of umbels each produces. A fine dried specimen, cut from our plant, has eight flowers in different stages of development. The plant is a splendid evergreen, growing erect and tall when left to itself, without many side branches.

The management of this fine plant is very simple; it is hardy, and will bear much rough usage. But its flowering is another affair, as will be thought when it is recollected that sunshine like that of last summer was necessary to throw the plant into bloom. In cultivating *S. Cunninghami*, those measures which tend to produce early maturity should be employed. Propagation is effected by cuttings.

Stenos, narrow, and *Karpos*, fruit, gives the generic name.

DSI



S. Holden, del & Lith.

Bignonia Chamberlaynii

BIGNÒNIA CHAMBERLAỲNII.

(Mr. Chamberlayne's Trumpet-flower.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
BIGNONIÀCEÆ.

Generic Character. — *Calyx* campanulate, five-toothed, rarely entire. *Corolla* with a short tube, a campanulate throat, and a five-lobed bilabiate limb. *Stamens* four, didynamous, that is, two long and two short, with the rudiment of a fifth. Lobes of anthers divaricate. *Stigma* bilamellate. *Capsule* silique-formed, two-celled, having the dissepiment parallel with the valves; seeds disposed in two rows, imbricate, transverse, with membranous wings.

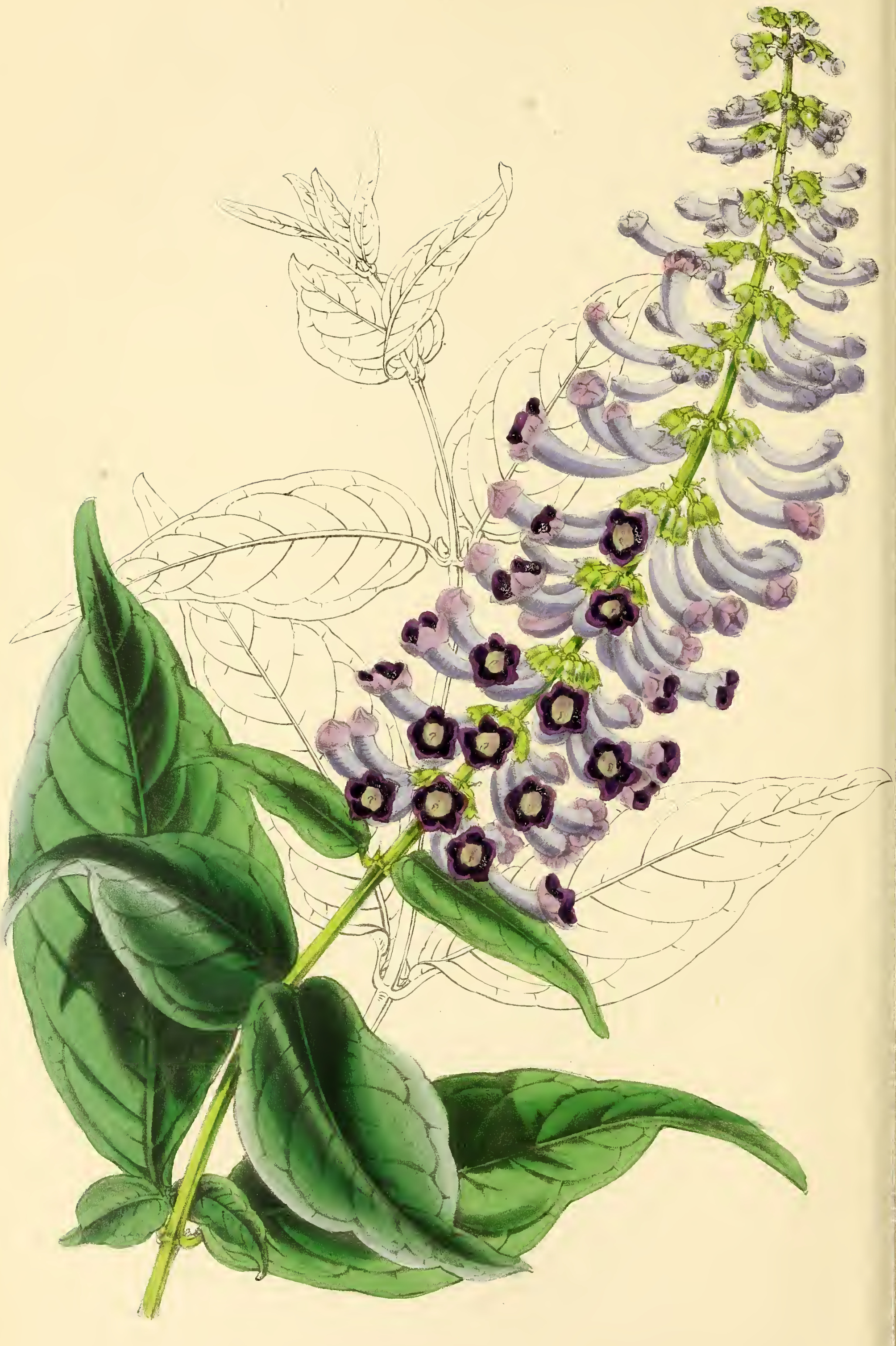
Specific Character.—*Plant* a climbing evergreen. *Branches* terete, glabrous. *Leaves* conjugate; leaflets ovate, acuminated, glabrous, shining above. *Tendrils* strong, simple. *Racemes* axillary, six to eight-flowered. *Calyx* cupulate, entire, or obsoletely five-toothed. *Corolla* funnel-shaped, yellow; segments obtuse.—*Don's Gard. and Bot.*

Synonyme.—*B. æquinoctialis.*

Of the many plants catalogued as *Bignonias*, and which are enumerated as species of that genus, very few are in cultivation. How it comes that such manageable, and in many other respects interesting plants, are not more favourably regarded, is not easily determined. There cannot be a doubt but many are eminently calculated to reward the efforts of culturists; and although a great proportion of the genus are climbers, and would be more in place on the rafters of the greenhouse and stove, they are equally as tractable when grown in pots like *Allamanda*, *Stephanotus floribundus*, and others. The fact that nearly the whole are considered stove plants may have operated to hinder an extensive cultivation of the family; but it should not; for of all the reputed stove species there are few that will not dispense with the protection of that house and flourish in the greenhouse, or even in the open air, under favourable circumstances.

The species of which a plate is here given bloomed in perfection last autumn in the stove at the Exotic Nursery (Messrs. Knight and Perry's), when the above drawing was taken. *B. Chamberlaynii* was planted in the house and secured to a trellis immediately beneath its roof, and covered at the above period a large space with handsome foliage and flowers. It is a rather slender-growing evergreen climber, having many recommendations to secure attention, not the least of which is its disposition to blossom abundantly without any stimulant being employed to induce it to do so. Any tolerable position in a greenhouse or mild stove might be devoted with advantage to *Bignonia Chamberlaynii*, when, if its roots and branches are allowed freedom, it will succeed all the better. The present specimen enjoyed the latter privileges, and, in addition, a gently warm moist temperature and partial shade. It is easily propagated, and is an old species, a native of Brazil, introduced in 1820.

Bignonia is in memory of Abbé Bignon, librarian to Louis XIV.



S. Holden. del. & Lith.

Buddleya Lindleyana.

BUDDLÉYA LINDLEYÀNA.

(Dr. Lindley's Buddleya.)

Class.
TETRANDRIA.

Order.
ANGIOSPERMIA.

Natural Order.
SCROPHULARIÀCEÆ.

GENERIC CHARACTER.—*Calyx* campanulate, five-toothed. *Corolla* tubular; limb four to five-cleft, equal, spreading. *Stamens* four to five, nearly equal, inclosed; anthers composed of two parallel, distinct cells. *Stigma* clavate, two-lobed. *Capsule* crustaceous; dissepiment constituted from the inflexed edges of the valves, inserted in the thick spongy placenta. *Seeds* angular, scobiform; testa loose, membranous. *Albumen* fleshy. *Embryo* almost the length of the seeds; cotyledons oblong, compressed; radicle very short.—*Don's Gard. and Bot.*

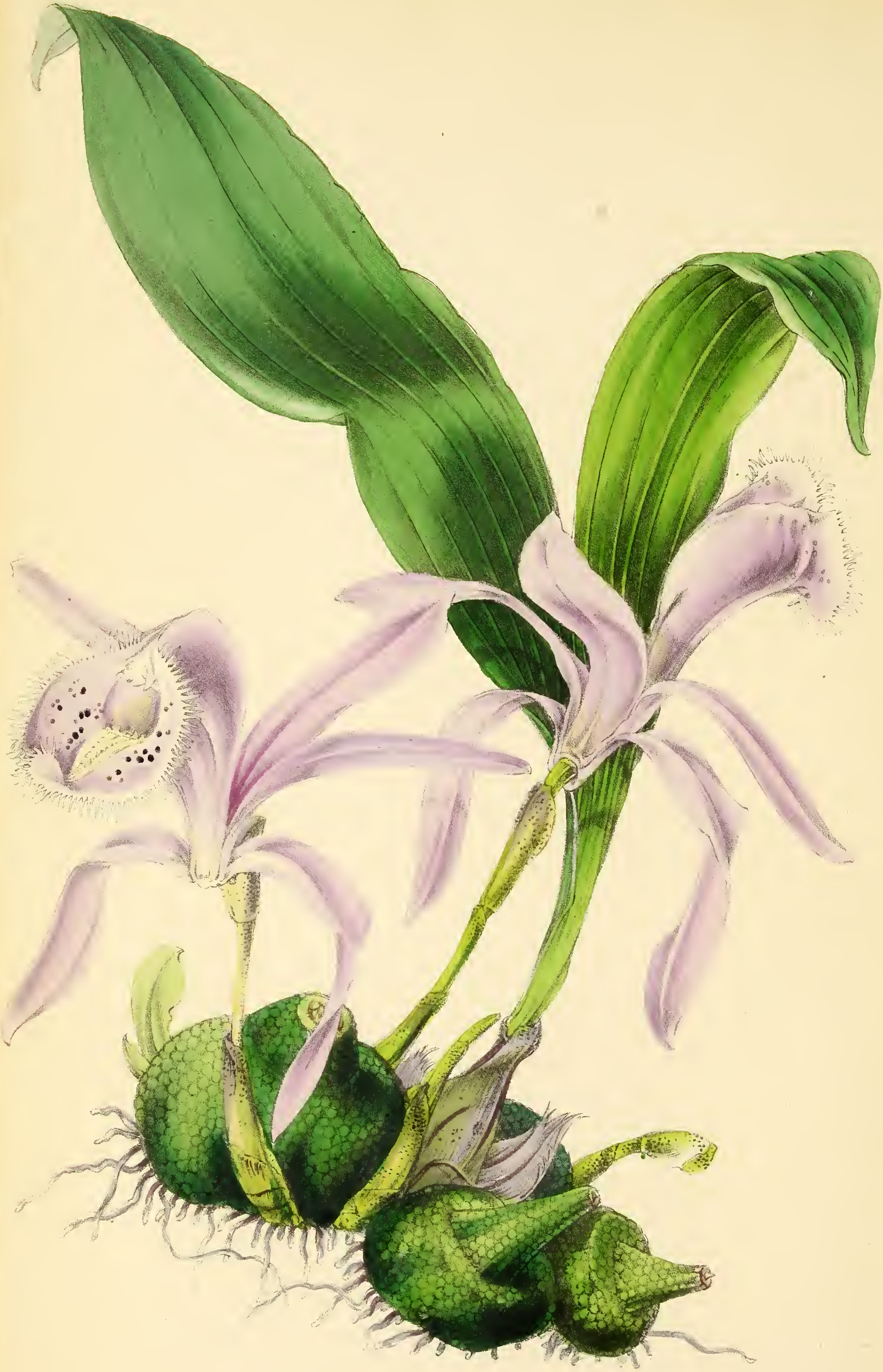
SPECIFIC CHARACTER.—*Plant* a tall, evergreen shrub. *Branches* tetragonal, very shrubby and glabrous. *Leaves* oval, acuminate, occasionally somewhat serrated, shorter than the petioles. *Inflorescence* tomentose, forming a terminal raceme or verticillate spike. *Calyx* dentated, with rather short triangular indentations. *Corolla* elongate, ventricose in the middle beneath, with obtuse lobes.—*Lindley.*

IT is no small tribute to the worth of this plant, to remark that it is a fit companion for the three fine associates with which it is introduced; and its merits justify any distinction arising from the association British gardens have received our subject through the Horticultural Society, by whose collector, Mr. Fortune, it was discovered shortly after his arrival at Chusan. He gave it the name it bears, and despatched seeds of it from China, in 1843. These were raised in the garden of the Society, producing plants that flowered in their conservatory the following year.

Buddleya Lindleyana may be regarded as hardy, although it is not so, correctly speaking. It will endure the rigour of our severer winters as an herbaceous plant, but cannot exist as a shrub, without protection. With this plant it has happened, as it often does with new ones, that it has been too indulgently treated. Many have planted it in a good situation, and in good soil, in the open air, where, under such favour, its growth has been rapid, the specimen becoming a tall graceful shrub, not flowering till late in autumn, and, therefore, liable to be destroyed by frost. Plants grown old, or in barren soil, blossom earlier, and continue increasing in beauty, up to the period they are overtaken by weather that prevents the further development of blossoms.

Our *Buddleya* is not very well adapted for forming an isolated specimen, in consequence of being very free and open growing; neither is it at all suitable for cultivation in pots. For the conservatory wall, or any similar situation, there is scarcely a more excellent plant. It may also be planted in shrubberies as *B. globosa* is, being as hardy, and a worthy companion to that species. The nature and extent of root-provision allowed to specimens planted against a wall, &c. must be regulated by the space their tops are designed to occupy. Layering or propagation by cuttings is a ready means of increase. Specimens obtained at the Horticultural Society's garden last summer, afforded the subject of our drawing.

The genus is named after an English botanist, Adam Buddle.



S. Holden, del & Lith

Cœlogyne præcox.

CŒLÓGYNE PRǼCOX.

(Early-flowering Cœlogyne.)

Class.

GYNANDRIA.

Order.

MONANDRIA.

Natural Order.

ORCHIDÀCEÆ.

Generic Character.—*Sepals* connivent or spreading, free, equal, similar in colour to the petals. *Petals* occasionally resembling the sepals, but sometimes linear. *Labellum* cucullate, frequently three-lobed, with depressed streaks or crests. *Column* erect, free, with a winged margin, expanding at the summit, or cucullate, with a two-lipped stigma. *Anthers* two-celled, covered, not divisible in the middle; inserted below the apex of the column. *Pollen-masses* four, free, inclining to one side, occasionally cohering.

Specific Character. — *Plant* an epiphyte. *Root* perennial, consisting of numerous simple fibres. *Stem* none. *Pseudo-bulbs* sessile, at first small and awl-shaped, clothed with beautifully veined scales imbricated in two ranks. *Leaves*, two from the summit of a bulb, later than the flowers, lanceolate, entire, plaited, ribbed, smooth, each tapering at the base into a footstalk. *Flowers* from separate bulbs, large, solitary, on shortish terminal, nearly upright stalks, each within a lanceolate membranous sheath. *Sepals* and *petals* lanceolate, acute, recurved, light purple, all nearly equal in length ; sepals narrowest. *Lip* nearly as long as the petals, rolled up into a funnel-shape, externally purple, its taper base united with the bottom of the style, and a little protuberant, not embraced by the petals, its margin spreading, fringed, white ; the inside marked with five longitudinal, rough, elevated yellow lines. *Capsule* obovate, with six furrows and three valves.

This species is a near relation of the charming *C. Wallichiana.* It inhabits a similar station in the East Indies, and principally differs in being altogether more robust, having paler coloured flowers and a much finer fringed labellum. Under culture it proves less delicate, requires similar treatment, but grows stronger and increases with greater freedom.

The *Cœlogynes* are among the most delightful of all Orchids, and of them none are more unique than *C. Wallichiana*, and three or four others closely approaching that species, which is probably better known than those to which allusion is made. Indeed one of them we are only acquainted with from the figure and account of it in Smith's "Exotic Botany." In that work its name is *Epidendrum pumilum*, and that of the plant now figured, *E. præcox;* but both must rank with *Cœlogynes. E. pumilum* has a lip "internally yellow, hairy, beautifully striped, and stained with red," is a native of Upper Nepal, but, as far as we are aware, is yet unknown in collections.

Cœlogyne præcox is also figured in the work above quoted, which has furnished our specific character, and has this account of the species :—"The plant in the annexed plate grows among mosses, on the trunks of trees, or on rocks, in Upper Nepal. Its name in the Nawar language, spoken by the subjected original natives of Nepal, is *Caybu Swa.*" Messrs. Loddiges record that they possessed *C. præcox* in 1840, earlier than which period we question whether it existed in this country. It is not even now a frequent plant, and has flowered with very few. The small specimen represented, produced flowers in the collection of J. Allcard, Esq., Stratford Green, Essex, in November 1845. The foliage delineated shows its character, and the young growth of the plant; but the flowers and leaves do not appear together naturally.

The species should be placed to grow upon or in some material that does not very readily part with the moisture given, as the plant requires a liberal allowance, much shade, and to be placed in the cool part of the Orchid house, when growing. Its increase is effected in the usual way.

Cœlogyne is founded in allusion to the shape of the stigma, from *Koilos* hollow, and *gyne* a female.

PHENOMENA OF WINTER.

In the number of December last, at page 250, notice was taken of the error which—so far as horticulturists are concerned—prevails in ordinary calculations of the four quarters of the year. Winter, for instance, is supposed to begin on the shortest day, December 21. The weather that has been observed since the article referred to was penned, has, we should presume, experimentally proved that winter fairly commenced its reign by the 21st of November, in so far as concerns the condition of plants, then arrived at the period of their yearly torpor. The sun also is within six weeks of its lowest descent; and as on the 21st of December he begins to mount the ascending signs, beaming stronger light, and therewith blending the vivifying agencies of heat and electricity, can we for a moment longer retain a preference for an erroneous kalendar? The late frosts, which commenced about the 26th of November, continuing with few short intermissions till the 28th of December, prove to demonstration that winter was completely established, and had passed through more than half its course.

We regret that the few important observations we have to offer could not earlier meet the eye of the reader, for much remains to be done in the meantime. Still, in order to confirm the facts which it appears desirable to establish, we venture to say that, unless the frost continue, with snow, and become more intense, ere the first day of February * numerous evidences of the vivifying influence of solar energy will be presented to the lover of nature; buds will enlarge, even through the coldest weather; the earliest flowers will emerge, if not to bloom; the grass will assume a livelier hue, and, whether exposed or under glass, a manifest progress in vegetation will be discerned. As, however, those meteorological phenomena of winter—frosts, snow, sleet, are to be expected till the fourth week of February, we may fairly admit the existence of three winterly months, provided that we estimate its middle or depth to fall on the 21st of December. There will then be five or six weeks before that day wherein nature is declining unto its utmost torpor, and from five to seven weeks after the turn of days, during which the principle of life (at least in the roots) begins to awaken into activity. As, however, the morning sun is ever the most vivifying, it can be granted that the depth of repose may continue till the first week of January, for not till then does the sun rise more early by a single minute. Formerly our kalendars indulged in another error, and recorded an exact and equal shortening and lengthening of all the days. Of late years, however, the almanacs give correct time, and show that while the sun ceases to set later in the evenings by or about the 9th of December, he continues to rise later in the morning till the 26th, when, and for six succeeding mornings, the hour of his rise is 8 h. 9 m.

---

* It will be observed, that the above observations were penned before the setting-in of the late frost; and that, owing to vegetation having suffered from the contingency there alluded to, the appearances indicated have not this year been witnessed.

The true period of the increments of solar influence may be dated from the 3rd or 4th day of January, and then the attention of the forcing gardener ought to be more and more roused. Our treatment of plants under glass must, of necessity, be regarded as artificial, since every ray is more or less obstructed or modified. The science of this branch of gardening, should therefore be conducted by observation and experience; effects should be closely attended to, results noted, and every reference to what is termed *nature* be abandoned, unless it simply consist of a geographical knowledge of the situation, climate, and general or mean temperature, and its extremes, in the native climes. *Glass* exerts a novel and modifying influence, upon every concomitant of plant culture; the constitution of the subjects within a forcing-house, is affected with respect to the nature of the heat, the light, the condition of artificially-raised moisture within the building, whereby also the transpiration from the oscular pores of the leaves is variously affected; and here, at this very point, we beg to offer, with all due respect for authorities, the suggestion, that most of the theories concerning the absorption of gases by the leaves, the transpiration of oxygen, the decomposition of carbonic acid, and the fixation of deposited carbon in the organism, (when founded upon experiments made only in unnatural situations, under glass, in close vessels, and in circumstances foreign to those of nature), cannot be deemed conclusive. Such theories remain subject to doubt, inasmuch as they lead to no certain knowledge whatsoever of the phenomena, that result from the energy of the great natural agents, exerted under circumstances perfectly and purely natural.

Every one ought to observe, and study the influence of light, during the recession and gradual advance of the sun; the chemical colouring and attractive influences are distinct, and although we may never discover the modes in which the components of light act, yet, being sure of the effects, it is very possible to trace their progress.

We now cannot further dilate, as it is required to take a cursory view of the agency of artificial heat, at a season when the economy of means is of the more consequence, inasmuch, as that implies also, the most perfect combustion of the articles employed. We will "begin at the beginning," and extract a few passages from the inaugural Lecture, delivered very lately by Dr. W. A. Miller, at King's College, which is reported in the *Pharmaceutical Times* of December 19th and 26th. "When a pound of charcoal" it states "is burned, when it combines with oxygen from the air, it gives out a certain amount of heat, which, from careful experiment, appears to be sufficient to convert thirteen pounds of water at 60 degrees—the ordinary temperature of the air—into steam at 212 degrees, the boiling point of water: in other words, it will boil away thirteen pounds of water; and more than the heat sufficient to effect this, no ingenuity can make it furnish." Here the amateur reader, who possesses hot water pipes or channels connected with a boiler, might, with great advantage, calculate the net contents of his machinery in gallons, and the bulk or weight of the carbonaceous material consumed to bring the water to a given heat. If *charcoal* be the type, although that substance cannot, in general, be employed, yet clear burning coke may; and *must* be used in the cylindrical boiler. From these data, though it cannot be expected by any one of us, that the great power of heat above mentioned, will ever be developed by even the best acting furnaces which we as yet possess, a comparative approximation can be attained; or the defect of heat may be so apparent as to prove the value of the one, or the worthlessness of the other. Suppose, for instance, that 50 or 52 lbs. of coke heat 600 gallons of water to a very efficient forcing power, while in another apparatus the heat developed by the same fuel is very much lower. In these cases, although it can never be presumed that the better of the two boilers will command the entire heat which the combustible can develope, yet it will be evident that the more defective boiler being the cause of a daily and injurious loss, demands the substitution of one differently constructed; or, at least, that the present be differently placed. We have never as yet seen a more powerful furnace than the one described in a former number under the term "Saddle-boiler."

Dr. Miller proceeds—"Some waste is almost inevitable," and "the first and most obvious loss, arises from the escape of the heated air from the chimney, before it has surrendered to the boiler the full amount of heat which it is capable to relinquish. It is manifest that the best method of obviating this, consists in so arranging the chimney and passages for the products of combustion, that they shall circulate thoroughly around the boiler, and that sufficient time may be allowed for them to part with their high temperature before escaping into the open air." These are plain facts, which have been often noticed, but found difficult to accomplish. However, the cylinder boilers, wherein the fire is confined to the inner case, is evidently defective, because the flame does not touch the external surface, but passes off over the upper rim of the boiler at once into the flue; as a remedy, the flue should be continued within the house, so as to confine and radiate all the heat possible.

Other boilers, wherein the entire centre contains the fire, and which force all the flame to pass over the top, and around the outer sides of the plates, must be vastly more efficient; but still there remain defects, and one of these, of very considerable moment, is thus noticed in the lecture. The knowledge of this, and the remedy for it, "is intimately connected with the chemistry of combustion. It depends upon an insufficient supply of air. It is a fact not less singular than important, that charcoal or coke may be dissipated in vapour, and may apparently be wholly consumed, by one half of the amount of air that is usually required in an open fire, under circumstances where the full quantity of heat is given out. This depends upon the property which charcoal has of *forming two compounds with oxygen:* in the first case, where the most heat is emitted, twice the quantity or amount of oxygen is taken up, and carbonic acid or 'fixed air' is produced: in the second case, a gas is also obtained, called *carbonic oxide;* it is colourless, and therefore escapes notice; but it is combustible, which carbonic acid is not, and in burning it gives a large amount of heat—in short, the other four-fifths of the heat, which are deficient when charcoal is burned into this gas." In common furnaces, this gas is formed by the union of the heated coal or coke with the carbonic acid, first produced by the direct union of the most heated portion of the fuel, with the oxygen of the air. "These furnaces are usually open to the air at the bottom by the bars of the fire grate, brisk combustion takes place, and the body of the coke above becomes of a bright-red heat; but the air is quickly deprived of its oxygen by the lowest layer of coal, the draught carries up the exhausted air, and with it the carbonic acid that has been formed; this gas, as it passes over the ignited coal, dissolves a fresh portion, cools the fire, and ascends the chimney."

Thus, then, admitting the full force of this statement, a very great proportion of the actual body of the fuel, is dissolved in the carbonic acid, and carried off unconsumed, to the great loss of the concern. Now, where shall we find a remedy for this unsuspected evil? The chemist could easily suggest one, by the introduction of a greater supply of oxygen, or fresh air, among and over the ignited body; but great nicety of adaptation must be employed, for while one evil was obviated, another, in the melting and clinkering of the coal into a solid and most unmanageable mass, might be dreaded. However, the quality of the coal (the *Moira* is capital) may obviate much of the evil.

Dr. Miller next alludes to the combustion of *coal* instead of coke or charcoal; in which he says, "Still greater loss is here sustained, because all the *visible smoke* is wasted, a good deal of carbonic oxide passes off in the invisible form, and still more *coal-gas* escapes unnoticed; the coal in the upper part of the furnace becomes coked, by the heat of the lower portion, and nearly all that the gas-works obtain, by the distillation of coal in retorts, here passes unheeded into the air."

This is unfortunately true to the letter; witness the volumes of smoke which are poured into the air from every shaft, where pure coal of any kind is employed, as the heating material. Dr. Miller denounces the evil as a nuisance, mischievous to health, and adverse to economy; but he points out no remedy. Here, then, the writer must again urge the importance of a jet of steam as the only effectual remedy. Could the boiler be made to boil the water, a skilful machinist would find little difficulty in adapting a cast-iron jet pipe, to terminate in an expanding rose pierced full of small orifices; but as the constant return of cooler water, keeps that within the furnace below the boiling degree, the arrangements must become more complicated.

Since the foregoing was written, and just at bringing this article to its close, a newspaper, writing on the "smoke nuisance," gives a notice, from Liverpool, that a remedy had been found, and adopted: the paper is not at hand, and, therefore, we can do no more than allude to the fact; it, however, brings to mind that a very observant person assured us, he *had* witnessed the immediate and total destruction of smoke, from some furnaces in Scotland, by merely turning the stop-cock of a tube, which conveyed a rose-jet of steam over the surface of the burning coal. The Liverpool article did not describe the agent *or* the machinery employed.

These hints will, we trust, induce thought and contrivance, for whatever the present difficulties, their removal would be amply compensated by the economical retention of even *two*, not to say *four* fifths of the heating power of the combustibles.

ON THE CULTURE OF ORCHIDS.

In our principal Orchid-house at Chatsworth—a large erection, long and wide, with a curved, ridge-and-furrow glazed, lean-to roof—we have spaces which, excepting the room allowed for paths, constitute the whole back portion. This part of the house is now, with a trifling exception, devoted to Orchids planted out. Making plantations of the family, is attained by the plants being massed together, and associated in clumps of various sizes, with a variety of kinds in each clump. The masses are planted in soil, and almost exclusively in soil of a particular description. But first a few words on the supports provided for the roots. That material is wood—" blocks " the separate portions are termed with us. The majority of pieces are roots, of various dimensions, when the shell, or casing of " sap wood," which was originally their outer portion, has gradually decayed and disappeared, leaving a chunk of " heart," seasoned and hardened wood, the most suitable that could be imagined for the purpose. Oak is the best block in point of durability, and as presenting grotesque forms appropriate to the character of the Orchid family, besides being a material to which the roots of Orchids are partial. Other "blocks" are scraggy pieces of the trunks of gnarled and distorted trees, and always of Oak, when that wood can be obtained. These " blocks " are often of an oblong shape, and are then easily fixed for use; one of their ends only requiring to be made smooth, to elevate and otherwise enable them to stand in an upright or slanting position, on a flat surface. Brickwork or wooden pillars are sometimes necessary, to enable them to be properly arranged and secured. But these are particulars about which little can be said, as circumstances of a strictly individual character regulate such minor details; so also do circumstances, conjointly with the taste of individuals, the disposal of the blocks as a whole. The main part of ours are so arranged, that they represent a sloping, undulated bank; and a very interesting and original effect they have, in the situation they occupy. So far, what has been written relates entirely to " blocks."

Of the soil employed, attaching it to the " blocks," planting, &c., we may next treat. The soil is a kind which abounds to a considerable extent in the neighbouring woods of Chatsworth, and is remarkable for the quantity of fibre which enters into its composition. The whole is vegetable matter, and chiefly consists of the fibrous roots of common Ferns, the annually decaying vegetation they put forth, and the decomposed leaves of various deciduous trees. A peaty matter, naturally formed by the ingredients here enumerated, is what we find the majority of Orchids succeed in, better than they do in anything else we have employed. But it is by no means the only soil in which the greater part will flourish, nor the material alone, placed on "blocks" for those to root into which have been planted out. In attaching soil to the "blocks" and securing it there, small copper wire and nails have been in requisition; but "blocks" are sometimes met with that do not require the assistance of those articles, being easily provided with a sufficiency by pressing fragments of the very turfy peat in their miniature chasms, hollows, and crevices. Some there are, too, whose general surface is nearly horizontal, and therefore can be furnished, by ranging slices of soil round their outside, to support what is laid on the surface. The most important point to keep in view in this operation is to preserve the romantic appearance of the "blocks," individually and collectively, and that they are not hidden by their inequalities being filled up with soil. Any measures that are taken to fasten the soil on the "blocks," is only necessary as a temporary process, for eventually the roots of the plants wholly occupy the soil, escape through and from it to the wood, and there cling so tenaciously that the whole mass is firmly held on by them.

Little need be said of planting, that part of the business being a simple affair, and easily accomplished. Small specimens and parts of plants should be selected, to occupy the "blocks," in preference to large plants, and those which have a bulky mass of roots, principally, because those with an unwieldy bundle of the latter organs, are difficult to dispose of in a nice manner, in so comparatively small a space as a "block" affords. Care should be taken, too, as well in putting Orchids on "blocks" as placing them to grow in pots or baskets, that they are not planted too deep. If the roots are sufficiently covered to keep the plants steady till they become established, and to give them a tidy appearance, nothing further in the way of planting is required, except that fine copper wire may be passed a few times among the plants over the soil to keep the latter compact and secure till they have got hold by their roots. The whole mass of soil on each "block," after the planting is completed, should have a thorough soaking of water before any part of it becomes settled and dry, and therefore almost impervious to wet; but afterwards moisture must be applied cautiously, for peaty soil, it is well known, when once wet, parts with its moisture as reluctantly as it receives it when very dry.

It has been mentioned that the soil used at Chatsworth, is not the only material placed with Orchids on "blocks," for them to root into. Living common mosses, chiefly the more finely organised kinds, are also employed, and found to afford a most agreeable medium for their roots, and, as they grow and flourish a long time, give a very interesting and highly natural aspect to the "blocks" on which they are wholly or partially put, to answer the purpose of soil. Some of the British mosses, tender *Lycopodiums*, *Tradescantia zebrina*, &c., are delightful, growing here and there on particular "blocks," or stuck appropriately over the whole mass. Many exotic, and some British ferns too, are equally pretty when thus disposed; but everything of this nature, so planted, will require to be kept properly under, as they usually grow so rapidly as to smother the legal occupants.

It has not been thought desirable to use the more choice Orchids in this plantation; but *Cœlogyne Gardneriana*, *Anæctochilus setaceus*, *Trichosma suavis*, *Miltonia spectabilis*, *Oncidium Lanceanum*, *Stanhopea tigrina*, *Odontoglossums*, *Dendrobiums*, *Cymbidiums*, *Lycastes*, *Zygopetalums*, *Bolbophyllums*, and a host of other genera are included, and the largest measure of success has attended the experiment. It is remarkable, that the highest degree of temperature any of the plants which have flourished so well, experienced, has been that which a close greenhouse usually affords, and many have grown and flowered admirably in the atmosphere and temperature of a close cold pit. Another thing made evident by these turned-out plants, is the fact of how thoroughly Orchids delight in shade. Many plants among those which succeed best, grow under a roof whose frame-work is of the old-fashioned material, wood, and many feet beneath it; and in addition to the shading the whole house is further screened from light, by a heavy framing of rough timbers, poles, &c., erected inside the structure, for the purpose of hanging plants growing on baskets and small blocks. The plants alluded to are of a deeper green, by only enjoying a greater degree of shade than their fellows; their roots being always healthy, and not so often subjected to alternations of drought and extreme wet. Specimens on "blocks" can be kept quite dry or "starved" at pleasure, just as those under other circumstances can; and those we have been writing of are quite out of reach of bottom-heat—a fact much deserving mention, though one that had almost escaped observation.

Where Orchids are cultivated for the love of the family alone, "block" planting should be resorted to; for it not only is highly favourable to the welfare of the plants, but enables them to be grown in the most natural and interesting manner.

If their increase and progress for the purposes of commerce is the object, then planting them out on "blocks" is also well adapted for the end in view, since under no system of culture do they so rapidly multiply in size, and admit of separation, as when thus grown.

Lastly, growing Orchids "on blocks" can be practised where it is desired to publicly exhibit them, because no individual could on reasonable grounds consider an exhibition specimen all bloom, all perfection, less lovely, splendid, or noble in consequence of its growing characteristically on a rude "block" of wood, perhaps in company and contrasting with half-a-dozen others quite as much in perfection.

THE CULTIVATION AND MANAGEMENT OF THE GENUS CLERODENDRUM.

This is one of those delightful tribes of plants which form such a striking feature at the Metropolitan Exhibitions in June and July, and it is to the enthusiastic perseverance of those cultivators, who contribute the miscellaneous collections of plants, at these annual exemplifications of floricultural skill and progress, that the public are indebted for a proper knowledge, of the management of this splendid genus.

The different species of this tribe of plants bloom at various seasons; some during the summer and autumn months, while others enliven our stoves with their gaudy or delicate flowers, at a time when the chill blast of the " Ice King," make their charms the more acceptable.

The *Clerodendrums*, or " Glory-trees," are principally natives of warm climates, such as the East and West Indies, Africa, &c., while some few of them are from China, New South Wales, and the temperate regions of Nepaul; but fortunately, though most of them require a high temperature during the season of growth, they will bloom from May until October in the atmosphere of a warm greenhouse, and hence they come within the management of every person, who can command the temperature of a dung-pit, or a Cucumber-bed, during their season of active growth. In fact, whoever can grow a Cockscomb or Balsam, may also grow the *Clerodendrums*.

Many persons imagine, probably from seeing the large specimens at the exhibitions, that these plants require a great deal of room; but it will be gratifying to our amateur friends to know, that several of the finest species, as *C. fallax*, and *fallax superbum*, *squamatum*, *splendens*, and even *paniculatum*, may be bloomed with very considerable success, in even six and eight-inch pots, and if they are not started too early, will continue to enliven the greenhouse from June to November, or even later, if they are kept in a growing temperature; and at the latter season, their flowers come in very acceptable for making bouquets.

In addition to the imported species, some very beautiful varieties have been raised in this country, so that it is no uncommon thing to hear a cultivator remark, when he sees an indifferent specimen, " Ah, you have got the bad variety;" so that purchasers will see it is important they should be particular in what they buy. The finest kind which we have seen is *C. fallax superbum*, a variety raised, we believe, by Mr. Barnes, the clever gardener of G. W. Norman, Esq., of Bromley, and it is remarkable for producing, in addition to a fine terminal or central panicle of bloom, a number of smaller side panicles, varying in number from ten to thirty, which, under good management, generally furnish from the pot upwards, and form a compact and very beautiful specimen. Those who are about commencing the cultivation of these splendid plants, will do best to apply to a respectable nurseryman, and procure the following kinds :—*C. fallax*, and *fallax superbum*, *speciosissimum*, *squamatum*, *paniculatum*, *infortunatum*, and *Kæmpferi;* to which, if they can be procured, may be added *C. Hugelii*, *hastatum* as a curiosity, *fragrans* and its double variety, with the white *fortunatum*, and most certainly the trailing species, *C. splendens*, of which there are two varieties, one with much darker flowers than the other, and more profuse in its habit of blooming.

Supposing these kinds to have been procured, and that they are nice dwarf plants in small pots, on the first of March we will make provision to commence their growth; and for this purpose a pit or frame must be prepared, in precisely the same manner that it would be prepared for cucumbers or melons, by getting it to a sweet atmospheric temperature of from sixty to seventy degrees, and with a good brisk bottom-heat.

Over the bed, after the frame is put on, place cinder ashes two or three inches thick; and as soon as these are warm, all will be ready to commence operations. Those who cultivate by the more fashionable method, of hot water and tanks for bottom-heat, will do well to take a hint from the preceding; for after all has been said, there is no atmosphere in which all soft-wooded stove plants, and many of the hard-wooded ones also, will grow so well as in that produced by the decomposition of fermenting materials ; and hence, if the tank is used, it will be advisable to take advantage of some well-prepared dung, to improve your atmosphere a little. In the opinion of some first-rate practitioners, and after trying all the various plans recommended, the perfection of heating, for vigorous and expeditious plant-growing, is a good system of hot water, combined with a well-managed dung lining.

All being in readiness, provide a compost of the following materials :—three parts well-prepared fibrous turfy loam, one part turfy peat, one rotten cow-dung, with a handful of charcoal, broken to the size of horse beans, and sufficient white sand to keep the mixture free and open. Then take some eight-inch pots, and drain them with charcoal; turn the plants out of their pots; and if the roots are at all matted, open them out a little with a fine-pointed stick, and pot them into the prepared pots, using the compost as rough as possible, and be careful not to consolidate the soil too much; give them a little warm water, place them in the pit or frame, and draw some of the ashes round the bottoms of the pots, to give a little additional bottom-heat; but take care that the bottom-heat does not become too strong. Keep the frame at a temperature of 70 degrees during the day, with plenty of air, and endeavour to keep a little air on also during the night, so that the heat does not fall below 60 degrees. The plants will require shading for a few days during bright sunshine, and indeed it will not be a bad plan to throw a thin shade over the plants every day for a few hours, as the leaves, being very large, are liable to burn under an unclouded sun. Cold draughts must also be guarded against, as they too are very liable to injure the tender foliage. In the management of the pit or frame shut up early in the afternoon, so as to command a good growing temperature of 80 or 90 degrees, but give a little air at the time of leaving for the night, so that the thermometer may fall to 60 or 65 degrees before the following morning. Follow this treatment daily, taking care to secure sufficient head-room for the plants in the frame, and keep a sharp watch upon the red spider, which is very partial to these plants.

In a fortnight or three weeks from the first potting, they will require a second shift, at which time eleven-inch or larger pots may be used, draining them with oyster-shells and lumps of charcoal, and using the compost as rough as possible. Return them to the pit, preserving the same treatment as before, until the pots are again well stocked with roots, after which time it will be advisable to stimulate them a little by some liquid manure. The best way to prepare this, is to take two pecks of sheep or deer's dung, one peck of soot, and one fourth of a peck of Potter's Guano; place these in a large tub and mix them into a paste with ten or twelve gallons of boiling water, then fill the tub up with sixty or seventy gallons of rain-water, and stir the water repeatedly for several days; at the end of that time take the scum off and throw in three or four lumps of lime, and you will have a fine clear manure as clear as old ale. In using this, dilute it with half its quantity of clean water, and use it of the same temperature as the place the plants are growing in. This water is used for watering twice or thrice a week in clear weather; and on days when we do not water, we frequently sprinkle our pits and houses with it, and with the best effects.

If the plants grow properly, they will be fit to shift into their blooming pots by the middle or end of April, and of course the size of the pot for this final shift must be governed by the kind and size of the plants and convenience of house-room. We generally bloom one specimen in 13, 15, or 18-inch pots, but we have had very nice compact plants in eleven-inch and even smaller pots.

After the plants show bloom, great care must be taken that they sustain no check, or the panicle may be deformed or much checked in its progress, but if they are kept regularly and vigorously growing, a panicle of from two to three feet six inches long may be insured from *C. paniculatum*, and with its large and wide-spreading foliage we know no finer object. Remove the plants into the greenhouse as soon as they are fairly in bloom, and they will continue to bloom until the end of the season. After the flowers begin to fade, the plants must be gradually dried off, so that they remain quite dry during the winter. In the spring cut the plants down to two or three eyes, remove the old soil, reduce the roots, and repot them into fresh compost, and start them as in the preceding spring. *Clerodendrums* may be propagated by cuttings of both the old and young wood, planted in very sandy soil, and plunged in a brisk bottom-heat of dung. They may also be increased by seed, which some of the kinds produce very freely, and it may be sown either in the autumn as soon as gathered, or any time during the spring months. *C. splendens* may be increased either by cuttings or budding, or by grafting on the roots of the stronger growing kinds. This is a trailing variety, and requires to be trained to a fancy trellis, or it may be planted out and trained up the rafter of the plant stove, where it will produce a profusion of flowers for nine months in the twelve. This species should not be cut in so close as the shrubby kinds; if it is spurred in to about three buds on each lateral branch that will be quite close enough. As these are plants which delight in a moist atmosphere, care must be taken to syringe them as frequently as possible during the time they are in a growing state.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED IN THE LEADING BOTANICAL PERIODICALS FOR NOVEMBER AND DECEMBER.

Acaˋcia mœ'sta. Dr. Lindley states :—“For a specimen of this plant we are indebted to an anonymous correspondent of the *Gardeners' Chronicle,* from whom it was received in April last. Upon submitting it to Mr. Bentham for his opinion, we were favoured with the following memorandum :—‘The *Acacia* is so very close upon some of the broad short-leaved forms of *A. verticillata,* that although it is very different from the common forms, I know not how to characterise it as distinct. It is an extreme of my var. *latifolia,* such as I have seen before, and intended to make a species once, till I got hold of a set of intermediates from that to *A. ruscifolia* of *Botanical Magazine;* and from this to the common form intermediates are frequent enough.' Notwithstanding this high opinion as to the plant being a mere variety of *A. verticillata,* we are induced to separate it, because its leaves are not verticillate, nor narrow, nor spreading, and because of its singular dull or even black-green colour.”—*Bot. Reg.,* 67.

Campaˋnula no'bilis. “This species has been introduced from China, by the Horticultural Society, whose Journal states :—‘The root-leaves of this fine herbaceous plant are deeply heart-shaped, of a bright pale green, and placed on footstalks from six to nine inches long, forming a large tuft. From among them, and to rather more than twice their height, rises the flowering stem, which branches a little at the bottom, and bears upon its divisions several fine nodding flowers, which seem to be the largest yet seen among the genus *Campanula.* They are something like those of *Canarina,* nearly three inches long and one and a half in diameter. The corolla is pale purple on the outside, and nearly smooth but paler within, abundantly sprinkled with bright purple dots, and closely covered with long delicate horizontal hairs.' A hardy plant.”—*Bot. Reg.,* 65.

Ca'ttleya Ski'nneri. “No colour that we can employ does justice to the brilliant rosy hue of this flower, justly named by Mr. Bateman in compliment to its indefatigable discoverer, Mr. Skinner, who detected it exclusively in the warm parts of Guatemala, and along the shores of the Pacific. It is described by Mr. Skinner as ‘inhabiting the hot damp coasts,' and as ‘a plant that will require treatment accordingly. It is always found on very high trees, and is most difficult to get at, except after a storm that may have chanced to have thrown down some of the largest forest trees.' ”—*Bot. Mag.,* 4270.

Cle'matis tubuloˋsa. “A handsome but singular-looking *Clematis,* with an upright, slightly branched stem, long petioled leaves, and clusters of blue flowers. These leaves have rather the appearance of some *Acteæ.* It is a native of Northern China, and has flowered in the greenhouse of the ‘United Gardeners' Nursery Society,' King's Road, Chelsea, under the care of Messrs. Weeks and Day, whence it was obligingly sent, in great beauty, by Mr. Makowski.”—*Bot. Mag.,* 4269.

Cœlo'gyne ochraˋcea. “The specimen from which the annexed figure was taken,” Dr. Lindley writes, “was supplied by Thomas Brockelhurst, Esq., of the Fence, near Macclesfield, in April last. Its pure white flowers, with bright orange-yellow blotches on the lip, are very pretty; and they are moreover extremely sweet-scented. We possess the plant from several localities among the late Mr. Griffith's valuable Indian collection. Darjeeling, Bootan, and the Mishmee hills all produce it. With the Mishmee specimens we have a note from its lamented discoverer, stating that it is common on Thummathaya and Zaimplang-thaya. These specimens differ a little among each other in regard to the amount of toothing present at the sinus of the lip, and as to its exact form ; but they all belong evidently to the same species."—*Bot. Reg.*, 69.

Escallo'nia Organe'nsis. "A lovely shrub, which will probably prove hardy, first detected in the Organ Mountains by Mr. Gardner, and about the same time by Mr. Wm. Lobb, whose seeds, sent to Mr. Veitch, of Mount Radford Nursery, Exeter, produced the plant from which this representation is taken. The stem and branches are of a rich red brown, extending to the calyx ; the leaves have their mid-rib in part, and the serrated margins red, and the petals are deep rose colour. Mr. Lobb's plant has the leaves narrower than in Mr. Gardner's specimen, but that is the only difference between them."—*Bot. Mag.*, 4274.

Heliophi'la tri'fida. A plant stated to be natural to sandy tracts near Cape Town, in the neighbourhood of Doornhoodge. "In our gardens it proves to be a very pretty, half-hardy annual, requiring to be grown in a mixture of sandy peat and loam, to which should be added a small portion of well decomposed leaf-mould or rotten dung. The seed should be sown about the end of February, in pots, and raised in a close pit or greenhouse, and treated like other half-hardy annuals. When the plants are sufficiently large, they should be transferred to other pots, not more than three or four plants being placed in each pot. It produces its gay ultramarine blue flowers from June to September in the greenhouse, and grows about a foot in height." Raised from seeds obtained at Hamburgh in the garden of the Horticultural Society. Synonyme *H. pinnata.*—*Bot. Reg.*, 64.

Impaˋtiens Platypeˋtala. "There does not appear to be any description of this charming Balsam, which belongs to the small division of species having whorled leaves. It is most nearly allied to *I. latifolia*, or at least to the plant distributed by Dr. Wight under that name (451), but that species has a shorter and thicker spur, long fringe-like glands at the base of the leaves, and a good deal of yellowish hairiness, especially on the young shoots and ovary. The *I. latifolia* of Linnæus is said to have alternate leaves." Noticed at page 142 of last volume as "Balsamina spes."—*Bot. Reg.*, 68.

Lyoˋnia Jama'icensis. From the high mountains of Jamaica, where it was first detected by Swartz, and it has since been sent to us by Dr. M'Fayden and Mr. Purdie. "Mr. Linden finds it in Jamaica, and it is n. 1694 of his collection from that country. It flowers copiously in June and July in a cool frame, and only requires to be kept from frost in the winter. We are indebted for the living plant to Mr. Mackoy of Liege. I have ventured to unite the *Andromeda fasciculata* of Swartz with this, for the differences described in the two are no more than are evident on slight varieties of the same plant. The flowers are extremely delicate, semi-transparent, and of a waxy appearance ; they are, moreover, fragrant with a honey-like scent." A moderate-sized shrub, with spreading branches and alternate ovate-lanceolate leaves, from whose axils spring short racemes of white or nearly white flowers. Synonyme, *Andromeda Jamaicensis.*—*Bot. Mag.*, 4273.

Odonto'glossum hastilaˋbium. "A truly lovely Orchideous plant wholly new to our living collections, but known to Dr. Lindley through Linden's specimens of New Grenada. Sent to Kew by our collector, Mr. Purdie, who gathered it in woods on the route from Santa Martha to the Sierra Nivada. Linden detected it in the province of Pamplona, at an elevation of 2500 feet. The flowers are numerous on the raceme, large, handsome, elegantly varied with pale green, purple and white, and moreover highly fragrant. Our drawing was made from the plant at Syon Gardens, where the species blossomed in August 1846."—*Bot. Mag.*, 4272.

Scutellaˋria Ventenaˋttii. Sir William Hooker writes :—"We have here the pleasure to figure a still more beautiful *Scutellaria* than that represented at our Tab. 4268 (*T. incarnata*), to which we there alluded, with far richer coloured flowers, and in other respects a good deal resembling it. Indeed we have already in that description, given it as our opinion that Ventenat had confounded this plant with the *incarnata*. They are, however, truly distinct from each other, as indicated by the above characters, and from *T. coccinea*, H. B. K., in the cordato-ovate and serrated (not oblong and entire) leaves. The present species was detected in the mountains near Santa Martha by Mr. Purdie, and seeds were sent home by him in 1845, which were reared in the summer and autumn of 1846. It has been treated as a greenhouse plant, but would doubtless flourish and prove highly ornamental to our flower-borders" The flowers are borne in terminal racemes and have corollas of a bright, deep scarlet colour.—*Bot. Mag.*, 4271.

Stenoca'rpus Cunningha'mi. "So long ago as 1828, the lamented Allan Cunningham discovered this plant on the banks of the Brisbane River, Moreton Bay, with other interesting novelties, described by him in the 1st vol. of the 'Botanical Miscellany;' such as *Grevillea robusta, Oxleya xanthoxyla, Castanospermum australe, Gyrostemon attenuatum, Acrostichum grande, &c.* Not, however, meeting with the subject of our present plate in flower, he took no further notice of it in his journal than to remark, states Sir W. J. Hooker, (as I am kindly informed by Mr. Heward,) 'that it is a slender tree, of most remarkable habit; with leaves large, from the extremities of the branches, glossy and lobed, or laciniated; without flower or fruit. No. 193.' Had he seen its blossoms elegantly arranged in candelabrum-like umbels, clothed with the most vivid orange-scarlet silky pubescence, he would assuredly have ranked it among the most important of his numerous additions to the Australian Flora. Two rooted plants were sent home and cultivated with great care by Mr. Smith, (from which all others in the country have had their origin); but although they have attained a height of sixteen feet, he has never been rewarded by seeing them blossom; nevertheless, he rightly suspected the tree to belong to the family of *Proteacea.* This idea is confirmed by some fruits, (destitute of seeds) which I received in 1843, from T. Bidwill, Esq., who gathered them in the same locality; and from this fruit, Mr. Brown pronounced the plant to belong to the genus *Stenocarpus.* For fine flowering specimens I am indebted, in August, 1846, to the kindness of Messrs. Weeks and Day, from the greenhouse of the 'United Gardeners' Society,' King's Road, Chelsea; and I learn from Mr. Makowski, of that establishment, that its blossoming is considered to be owing to the plant having been much cut in for the purpose of increase. The handsome evergreen, glossy foliage, has, indeed, long recommended this plant to the attention of cultivators, and now that its beautiful inflorescence is known, there can be little doubt but the demand for it will be in proportion to its loveliness. Mr. Smith remarks that it is a robust growing plant, and not, like many of the Proteaceæ, apt to die off suddenly."—*Bot. Mag.*, 4263.

Swainso'na Greya'na. "A gay flowered, half herbaceous plant sent to the Horticultural Society by His Excellency Captain Grey, from the banks of the Murray, in New Holland, where it had been previously found by Sir Thomas Mitchell. It has dull brownish, hoary leaves, from whose axils a profusion of large purple flowers, with a white eye, appear in the summer." It will doubtless prove as useful as *S. galigifolia*, than which it is very much larger.—*Bot. Reg.*, 66.

Tore'nia co'ncolor. "This plant is probably regarded in herbaria as *T. Asiatica*; but living specimens forbid its union with that species. Its leaves are roundish ovate, or even cordate, and by no means ovate-lanceolate; their serratures are much smaller. The flowers have no side spots; and the tooth of the larger filaments is far shorter, and more blunt. Probably it is the same plant as was distributed by Dr. Wight, under the name of *Torenia Asiatica*, No. 2205, while the true species is Dr. Wallich's No. 3953. In form of leaf it agrees with some of the specimens in Dr. Wallich's herbarium, called *T. cordifolia*, but referred by Mr. Bentham to *T. Asiatica;* they, however, have small flowers, and are probably something else." Noticed at page 166 of last volume.—*Bot. Reg.*, 62.

Va'nda Batema'nni. "The honour of discovering this splendid plant is due to M. Guadichaud, who met with it in the Moluccas; and introduced it to Mr. Cuming, who sent it from the Philippines; with Mr. Bateman it produced its magnificent flowers, in the stove at Biddulph Grange, in June and July last. It is a very large, erect plant, with remarkably thick aerial roots, produced after the custom of its kindred; sword-shaped, curved, two-ranked, hard leaves, averaging two feet in length; and a still longer spike of some score of flowers, each full two inches and a half across, flat, leathery and long enduring. But it is not alone for their size that these flowers are so especially worthy of notice. Their colour is indescribably beautiful. If you look at them in the face they are the richest golden-yellow, spotted all over with crimson; but when seen from behind, they are wholly a vivid purple, fading away at the edges into the violet of *Cereus speciosissimus.* So that, regard them which way you will, there is nothing but the gayest and richest colours to be seen."—*Bot. Reg.*, 59.

Victo'ria re'gia. To illustrations, and giving a detailed account, &c., of this magnificently grand vegetable production, Sir W. J. Hooker devotes the whole January number of his work, observing, "It has always been our endeavour to commence a new year in this Magazine with some eminently rare or beautiful plant; but never had we the good fortune on any occasion to devote a number to a production of such pre-eminent beauty, rarity, and we may add celebrity, as that now presented to our subscribers; worthy, as we have no doubt they will agree with us in thinking, to occupy the entire number. Seldom has any plant excited such attention in the botanical world; the interest being specially enhanced by the name it is privileged to bear.

"It is true that the *Victoria* has not yet produced its blossoms in England; but we have growing plants in the Royal Gardens of Kew, which germinated from seeds brought from Bolivia by Mr. Bridges. These have hitherto made satisfactory progress; although we have our fears that, the plant being possibly annual, and the season late (December), they may not survive the winter; or, at any rate, may not produce perfect flowers. We have, however no reason to despair of being able to raise the *Victoria regia*, and of seeing it bloom in this country.

"Although to our own country belongs the honour of first fully detailing, in 1837, the particulars relative to this extraordinary Water Lily, and clearly defining its generic distinctions, yet the earliest mention of it in print, so far as we can find, was in 1832, in a work to which we have not at this moment access, 'Feoriess's Notizen,' vol. xxv., p. 9. It is there described as a new species of *Euryale*, under the name *E. Amazonica;* so called by Dr. Poessig, from the circumstance of that distinguished botanist and traveller having found it in the Amazon River of South America.

"Previously, however, to this period, M. D'Orbigny, in 1828, sent specimens of this gigantic Water Lily to the Museum of Natural History in Paris. He had gathered them in the province of Corrientes, in a river tributary to the Rio de la Plata. The evident analogy between the foliage of this plant and that of Euryale induced the French botanists to rank it as a species of that genus. The dried flowers and fruit, which M. D'Orbigny had transmitted, were unfortunately neglected, and nothing remained of his specimens but a single leaf, of immense dimensions, and somewhat injured, which had been folded for insertion in the 'herbarium.' In 1835, M. D'Orbigny gave a notice of what he considered a species distinct from *V. regia* in his '*Voyage dans l'Amérique Méridionale.*'

"Thus much for the earlier discoverers and first notices of this magnificent aquatic; we shall have occasion to return to M. D'Orbigny; but, in the meanwhile, it is only justice to mention in this place that Sir Robert Schomburgk detected the plant in British Guiana, when travelling on account of the Royal Geographical Society of London, aided by Her Majesty's Government; his object being to examine the natural productions of that portion of the British dominions. The following account of this discovery was given in a letter addressed to the Geographical Society:—

"'It was on the 1st of January, 1837, while contending with the difficulties that Nature interposed in different forms to stem our progress up the River Berbice (lat. 4° 30′ N., long. 52° W.), that we arrived at a part where the river expanded and formed a currentless basin. Some object on the southern extremity of this basin attracted my attention, and I was unable to form an idea of what it could be; but, animating the crew to increase the rate of their paddling, we soon came opposite the object which had raised my curiosity, and behold, a vegetable wonder! All calamities were forgotten; I was a botanist and felt myself rewarded! There were gigantic leaves, five to six feet across, flat, with a broad rim, lighter green above and vivid crimson below, floating upon the water; while, in character with the wonderful foliage, I saw luxuriant flowers, each consisting of numerous petals, passing, in alternate tints, from pure white to rose and pink. The smooth water was covered with the blossoms, and, as I rowed from one to the other, I always found something new to admire. The flower-stalk is an inch thick near the calyx, and studded with elastic prickles, about three-quarters of an inch long. When expanded, the four-leaved calyx measures a foot in diameter, but is concealed by the expansion of the hundred-petalled corolla.

"'This beautiful flower, when it first unfolds, is white with a pink centre; the colour spreads as the bloom increases in age, and at a day old the whole is rose-coloured. As if to add to the charm of this noble Water Lily, it diffuses a sweet scent. As in the case of others of the same tribe, the petals and stamens pass gradually into each other, and many petaloid leaves may be observed bearing vestiges of an anther. The seeds are numerous, and imbedded in a spongy substance.

"'Ascending the river, we found this plant frequently, and the higher we advanced the more gigantic did the specimens become; one leaf we measured was 6 feet 5 inches in diameter, the rim 5 inches and a half high, and flowers a foot and a quarter across.'"

In addition to the foregoing intelligence respecting *Victoria regia*, the *Botanical Magazine* contains detailed particulars concerning it, translated from the "*Annales des Sciences Naturelles*," in which work they were published by M. D'Orbigny, and from Mr. Bridges communicated to Sir Wm. Hooker. Mr. B. also supplied the specimens which enabled the latter gentleman to have the *Victoria* so finely portrayed, and clearly show it is entitled to bear the name it does, and which it received from Dr. Lindley.

Mr. Bridges states :—"The *Victoria* grows in 4—6 feet water, producing leaves and flowers which rapidly decay and give place to others. From each plant there are seldom more than four or five leaves on the surface, but even these, in parts of the lake where the plants were numerous, almost covered the surface of the water, one leaf touching the other. I observed a beautiful aquatic bird (*Parra*, sp. ?) walk with much ease from leaf to leaf, and many of the *Muscicapidæ* find food and a resting place on them." Native of many parts of South America. Synonymes *Victoria Regina, V. Cruziana, Nymphæa Victoria, Euryale Amazonica.*—*Bot. Mag.*, 4275-4278.

OPERATIONS FOR FEBRUARY.

Generally considered, what is now of importance is to see that the various collections and stores of plants for the flower ground are in such a state as to numbers and keeping, as will be afterwards required. If they are not, the process of manufacturing them, as it may be termed, should be commenced instantly. The less there is, however, of this business, now to do, the better for many reasons, the most practical of which is, that, with some slight reservations in favour of particular plants, those propagated in spring are not so well adapted for our purpose as if they had been raised and had got well established in autumn. All cuttings of the above class of plants placed to root, should be so favoured that they can strike as quickly as possible, and afterwards they should be encouraged to become strong and well rooted.

It is very desirable to prevent, as far as it can be done, all the various plants intended for the open ground, from wasting their energies in useless growth, before they reach their destination. Subjecting them to the lowest temperature consistent with their welfare, and giving as little water as possible, is doing a great deal towards effecting the object in question. Preparation to advance the above object should be made, by henceforth disposing of all plants occupying cold frames and pits, that will bear permanently placing, or be sufficiently protected by less complete shelter, thereby leaving those structures open to receive more tender things that may be too much favoured elsewhere.

Scarlet *Pelargoniums*, *Fuchsias*, *Salvia patens*, and such things, lifted from the flower-garden in autumn and arranged away in the rough manner—in almost every place—will soon begin to grow; a few or many of them, according to the demand, ought to be potted, or otherwise treated, that the formation of new roots and tops may be progressing. Some of the many strong shoots that often proceed in abundance are excellent to make plants for the parterre.

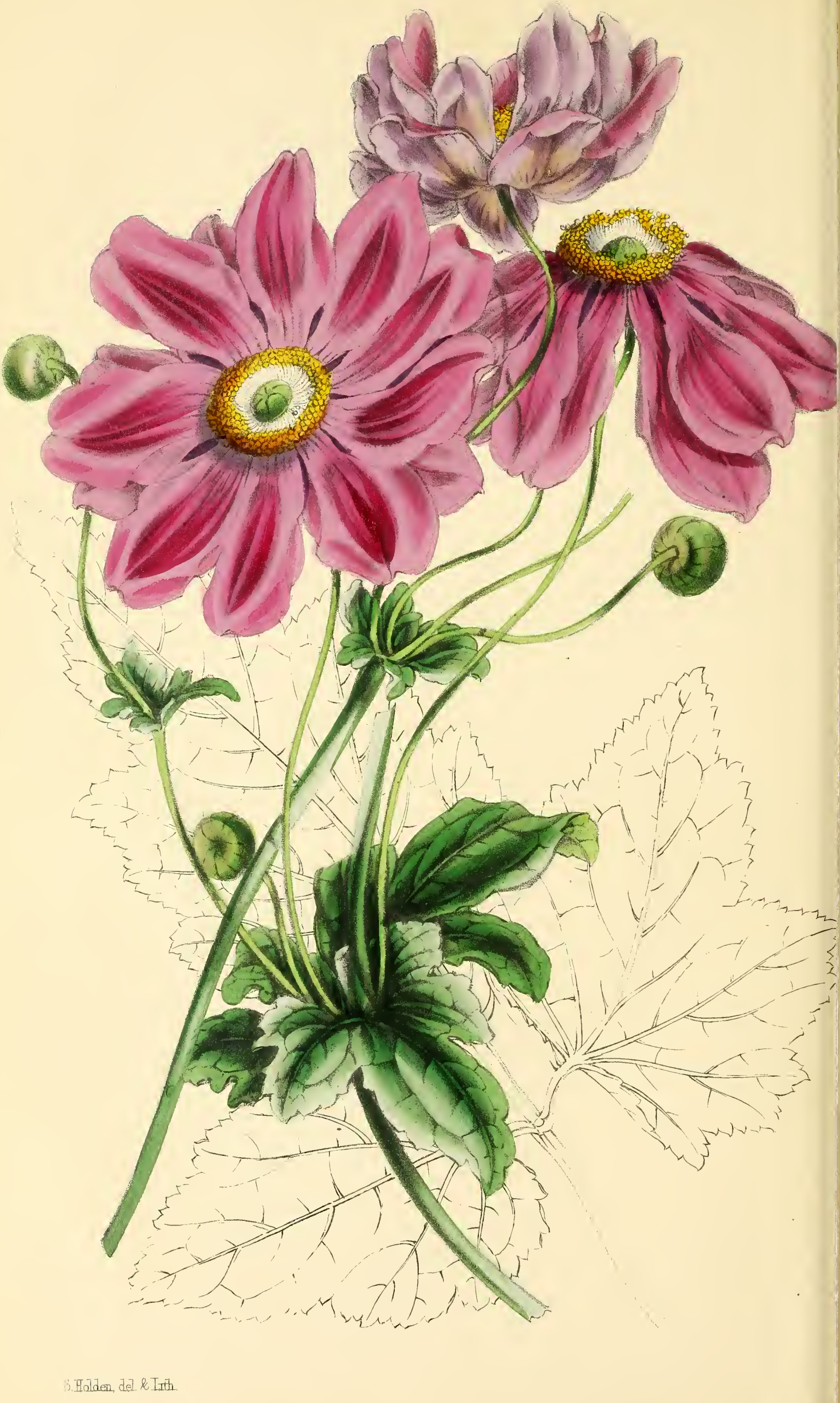
Do not allow the sowing of seeds of tender and hardy annual, biennial, and perennial plants, to be neglected this month.

In plant-houses continue the operation of giving increased root-room to their occupants. Commence surface-dressing, with new soil, manure, or leaf-mould, &c., as they stand in need. Prune, adjust, and permanently secure any climbers that require it. In all potting, let liberality distinguish your proceedings; use the freshest and best soil obtainable, not minding about its being very rich. Richness is easily given to soil in a liquid shape, and in that condition can also be made an ingredient at any time when plants most require its application. Clean pots should always be employed; they contribute in no small degree to the plants' welfare, and are necessary for the creditable appearance. Train and support new growth of plants, disbud them, and, above all, keep them free from insects. Syringing, giving air every suitable opportunity, watering and attention to providing a proper temperature for growing plants, must also be duly regarded.

Forced flowers are more beautiful, and as numerous now as they will at all appear. Every care must be taken of them, and due attention given to the every day increasing number of plants bursting into flower without assistance.

Out-door work is multitudinous at this season. Preparing old, or forming new, sites for flowers; pruning a variety of things; fixing climbers, trees trained against walls or fences, and the completion of planting shrubs and trees, is amongst the most prominent business. All planting should be finished without delay, if it is possible, and especially where the term includes the removal of large or considerable specimens. Never think the latter, when being removed, will suffer from kind treatment, or that tender dealing with them is labour thrown away. It is important to recollect this at all times. Towards the end of the month some half-hardy things may be put out. Climbers and other plants it is desirable to have in flower early, it is well to have in the open ground as soon as possible; but it is only really safe to place them there under comparative shelter, or where the latter can be easily employed. In shrubbery borders, or among miscellaneous groups of shrubs, introduce a plant or two of the generally well-known species of Adam's Needle (*Yucca gloriosa*), or something of that description. Such things, if they do well, produce an interesting and highly exotic effect. When thinning-out masses of shrubs, give prominence and abundant freedom to goodly specimens, particularly evergreens, that they may improve in beauty as well as increase in size. A few well-formed shrubs or trees, although comparatively so clustered together that they are not separate, are a much more gratifying object, and appear of greater importance than an extensive group allowed to ramble and grow into each other, wilderness fashion. Begin to get walks and lawns into a good state by commencing to roll regularly and by keeping them clean.

Pinks, Pansies, and similar things, standing over from last autumn in pots, should be planted out; and Pinks as well as Carnations may be put into pots in which they are intended to flower. The foliage of choice Tulips must be protected from cutting winds and sharp frosts, and Auriculas have a due amount of attention; they also must be protected from hurtful influences; but avoid exciting them.



S. Holden, del. & Lith.

Anemone Japonica.

ANÈMONE JAPÒNICA.

(Japanese Anemone.)

Class.
POLYANDRIA.

Order.
POLYGYNIA.

Natural Order.
RANUNCULACÈÆ.

Generic Character.—*Involucre* of three cut leaves distant from the flower. *Calyx* of five to fifteen petal-like coloured sepals. *Petals* wanting.—*Don's Gard. and Bot.*

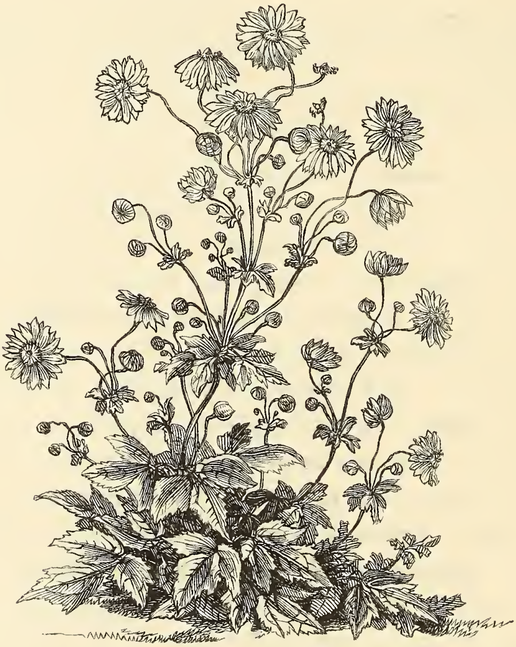
Specific Character.—*Plant* a perennial. *Radical* and *stem-leaves* ternate, divided into cordate, unequally trilobed, doubly serrated segments. *Involucrum* inferior, having a cuneate conformation at the base of the petiole; sessile when superior. *Peduncles* elongated, unifloral, or (if dichotomous) having a flower and involucrum upon each subdivision. *Sepals* twenty, conspicuously silky.

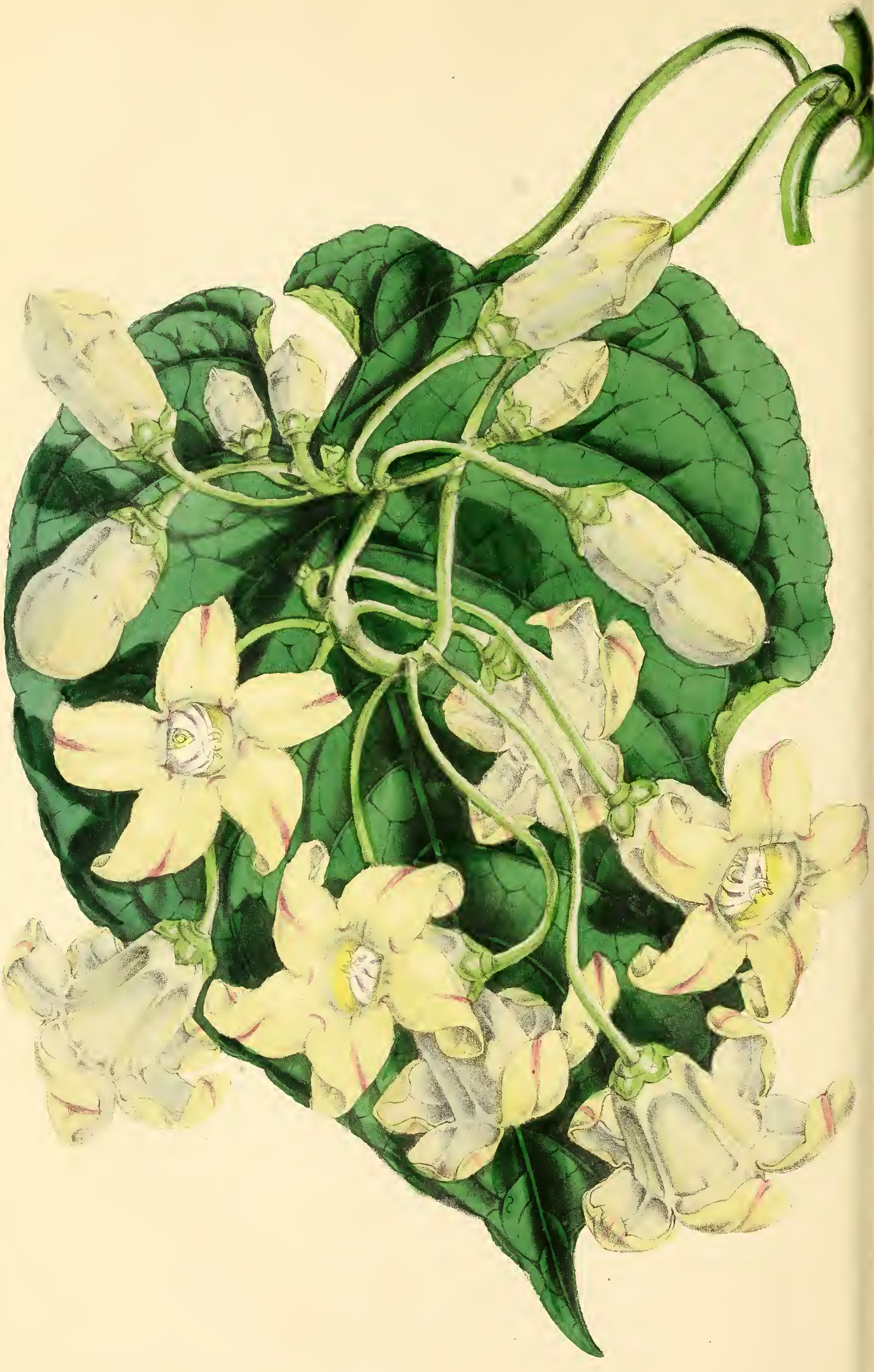
Synonymes.—*Atrogene Japonica, Clematis? polypetala.*

This is the first *Anemone* we have figured, and it affords us no small degree of gratification to adorn our pages with so fine a one. Apart from the fineness and gaiety of its flowers, the greatest recommendation of *Anemone Japonica* is its usefulness. If it is grown in the open ground, and it is unquestionably more in its proper element there than under shelter, it comes to perfection in a fine season when most summer-flowering plants have become straggling, exhausted, and uninteresting. In an unfavourable summer or autumn, too, from blooming naturally at the latter season, *A. Japonica* has a chance of remaining comparatively unaffected when other subjects of Flora's kingdom may be prostrate. Early autumn frosts, it is scarcely necessary to mention, injure the flowers of our plant as they do all others, and this circumstance suggests that it may be made to flower in pots for the decoration of the conservatory or greenhouse. By bringing plants forward under glass, they may be had in flower early in autumn, and by using a retarding process against others, they can be made to bloom proportionably late. The annexed woodcut in connection with the plate conveys some idea of the habit of the plant. Its flower-stems rise from a foot to eighteen inches high, and bear a profusion of blossom. It will stand high cultivation as a pot-plant, and is very suitable for the flower-garden either in masses or as solitary specimens. When intended to occupy a bed in a parterre, it may be planted with something that would flower through the summer and give way to the superior claims of its neighbour in autumn. The present winter has been sufficiently severe to test its capability of withstanding cold. It has been regarded as a hardy plant, grown in ordinary garden-earth, and is freel increased by suckers or offsets.

The history of this *Anemone*, which has long been known to botanists, may b found at page 20 of last volume, but our plant is another of the best results of th Chinese floricultural mission of the Horticultural Society. Their collector forwarde the species from Shunghae to the Society's garden, where it arrived in 1844. Plant in Mr. Glendinning's establishment, Turnham Green, Chiswick, furnished th subject of our drawing in October last.

A Greek word signifying wind, owing to many of the genus growing naturally i elevated and exposed situations, has been selected for the foundation of the generi name.





olden del. & Lith

Raphistemma pulchellum.

RAPHISTÉMMA PULCHÉLLUM.

(Pretty Raphistemma.)

Class.
PENTANDRIA.

Order.
DIGYNIA.

Natural Order.
ASCLEPIADÀCEÆ.

Generic Character.—*Corolla* campanulate; limb, ive-parted; staminal corona five-leaved; leaflets compressed, elongated. *Anthers* terminated by a membrane; pollen-masses fixed beneath their apexes, pendulous. *Stigma* bluntly conical. *Follicles* solitary by abortion, somewhat ventricose. *Seeds* comose.

Specific Character.—*Plant* a glabrous twining shrub, evergreen. *Leaves* largish, cordate. *Flowers* white, corymbose. *Corona* exserted, equal to the limb of the corolla.—*Don's Gard. and Bot.*

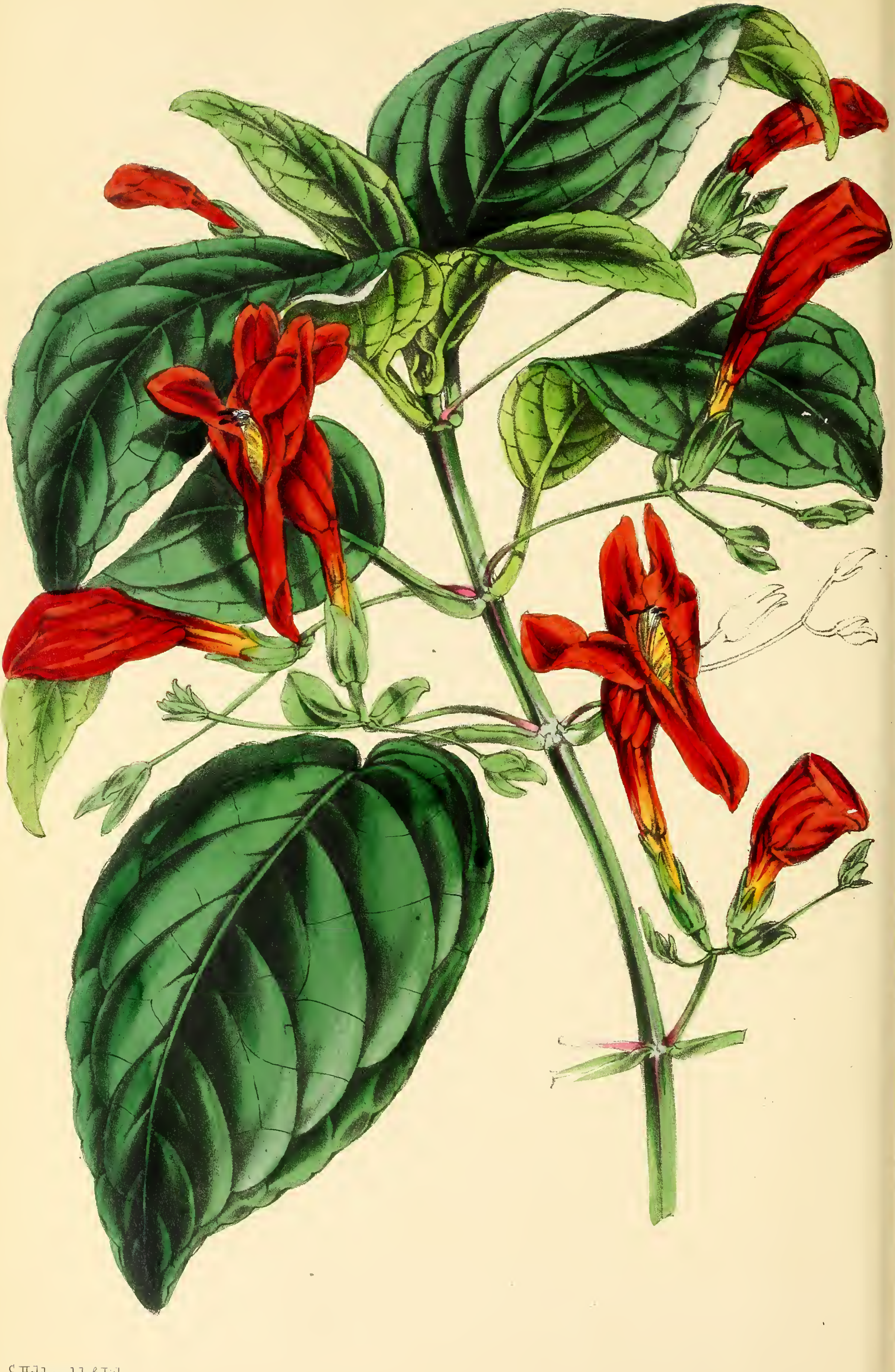
Synonymes.—*Asclepias pulchella, Pergularia campanulata.*

In publishing a figure of this twining plant we adopt the name which Dr. Wallich has given it in his fine work, the "Plantæ Asiaticæ Rariores." But as eminent botanists of the present day do not follow that distinguished author in the present case, *R. puchellum* may hereafter receive another name.

Although we regard this as a comparatively recent addition, we have no direct information as to when it was introduced. We only know of its having flowered with Messrs. Knight and Perry. With these gentlemen, a tolerably large specimen developed a profusion of blossoms last October, and a drawing was taken at that period. Silhet, Gowalpara, Tavoy, and other places in the British territory of Hindoostan, are given as natural habitats of the species.

R. pulchellum is nearly equal to *Stephanotis floribundus* for culture in pots, and superior to it as a conservatory or stove climber, inasmuch as it is not so stiff in its habit, and therefore more suitable for training to columns or rafters in the interior of a glass structure. We compare it with *S. floribundus*, because that beautiful plant is so well known, and also because it has some features in common with this species. It produces bloom well nigh as freely now as *S. floribundus;* and when it has been longer under cultivation, it may be expected to make advances in this particular; it will also succeed in a like temperature, in similar soil, and will flourish and increase under similar management. Though *R. pulchellum* emits a perfume which is agreeable to some persons, and its flowers are white when they first expand, it has nothing of the delicious fragrance nor purity of colour of *S. floribundus.* It is much stronger growing than the plant with which it has been compared, and has rather large cordate tender leaves. The flowers soon change from white to the colour given in their representations. Dr. Wallich, whose figure represents the flowers to be white, writes of the plant as follows :—" This fine shrub is the largest-flowered Asclepiadeæ with which I am acquainted, and I have found it peculiarly adapted to afford a clear and complete insight into the organisation and economy of that difficult family so beautifully developed by Mr. Brown. If the analysis instituted by that illustrious botanist be repeated in a flower of our plant, even long before the corolla has become visible beyond the calyx, the pollen masses will be found quite consolidated into a distinct form, within the respective cells of their anthers. Soon afterwards the processes of the retinacles extend to the masses through the upper part of the anthers, which have now burst open. The stamens are epipetalous, and quite distinct and free; their inner concave side is divided into two lateral cells, containing a sweet mucous fluid, by means of a vertical broadish ridge which rests on the pistils."

The generic name comes from *raphis*, a needle, and *stemma*, a crown, in allusion to the shape of the leaflets of the corona.



S. Holden. del & Lith.

Ruellia macrophylla

RUÉLLIA MACROPHỲLLA.

(Large-leaved Ruellia.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
ACANTHĂCEÆ.

Generic Character.— *Calyx* five-parted; lobes equal or sub-equal. *Corolla* hypogynous, funnel-shaped; limb five-parted; lobes equal, spreading, obtuse. *Stamens* four, inserted in the tube of the corolla, didynamous. *Anthers* oblong, two-celled; cells parallel, equal. *Ovary* two-celled. *Style* simple. *Stigma* oval-shaped, channelled at the back. *Capsule* oblong quadrangular, two-celled, six to eight seeded; cells two-valved; valves seed-bearing. *Seeds* adhering by a thread.

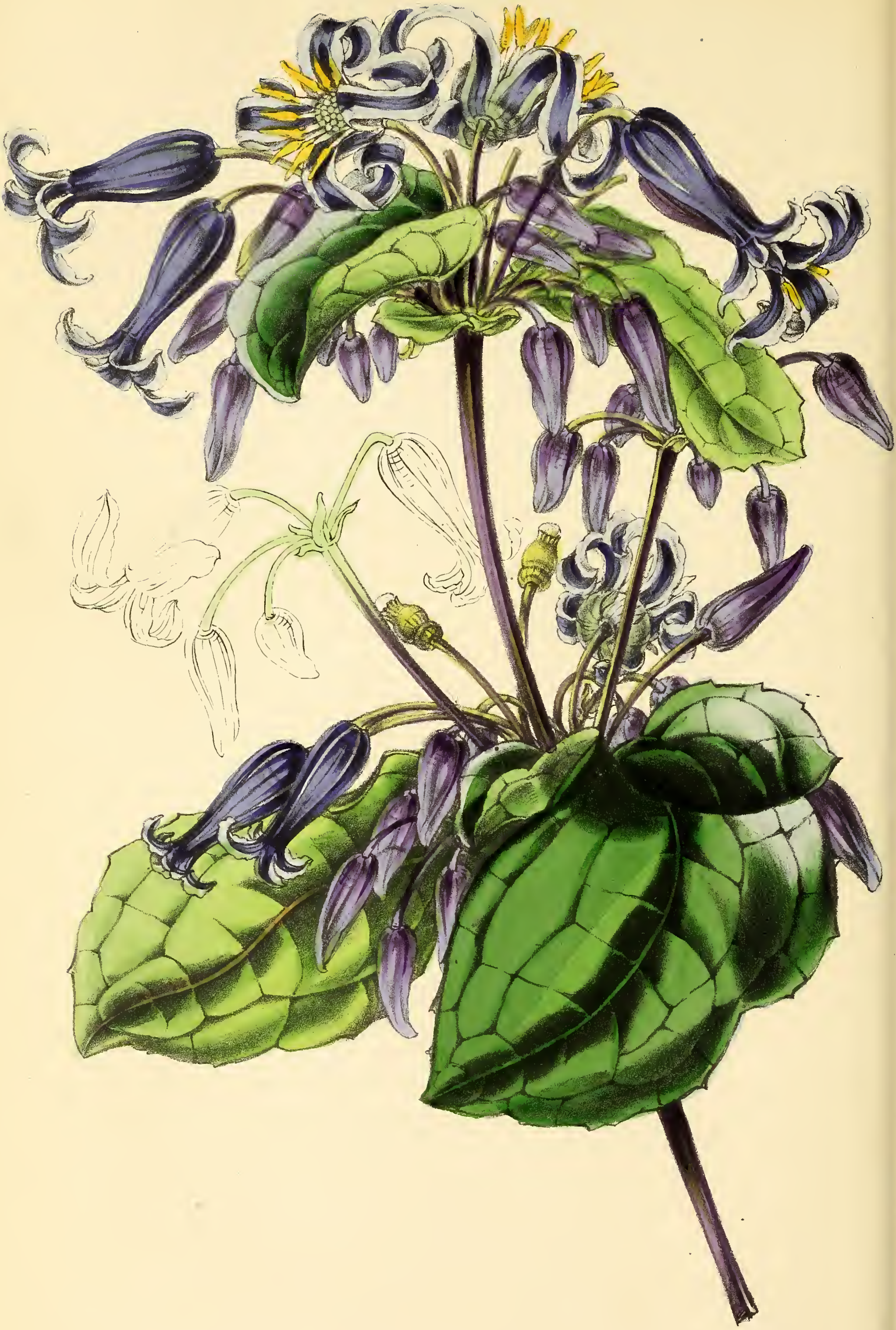
Specific Character.— *Plant* a perennial shrub. *Leaves* ovate-lanceolate, entire, pubescent. *Flowers* produced in dichotomous panicles. *Bracts* linear, situated somewhat regularly upon the small branches; the smaller bracts scaly. *Corolla* bilabiate, divided into obtusely ovate lobes; the paramount lobes approximating closely, the others equidistan . *Stamens* exserted.—*Lindley.*

The fine old stove plant of which a specimen is here represented calls for very few remarks at our hands. Some records speak of it as having been introduced more than twenty years since, and it may have been a cultivated plant in England as far back as that date; but we look upon the present race of plants as modern arrivals, from St. Martha, New Granada, South America, to the Royal Botanical, Kew, or Sion House Gardens; from thence it has found its way into many collections. Messrs. Knight and Perry's produced flowering specimens, which enabled us, last summer, to prepare the present drawing.

Ruellia macrophylla succeeds under culture when grown in the soil and favoured with the treatment stove plants usually receive. It is a free-growing and abundant-flowering species, quickly attaining goodly dimensions; has ample foliage, flowers a considerable length of time in summer, propagates easily by cuttings, and, we doubt not, can be made to do so by seeds likewise. Liberally grown, large specimens display the character of our subject to the greatest advantage; but small ones also flower, and when doing so are worthy of even choice collections.

Dr. Lindley, publishing *R. macrophylla* last year, wrote of members of this and allied genera thus:—"It should be an instruction to all persons sending home South American seeds, not to forget the fine species of Acanthads with which that part of the world abounds; for although many are but weeds, yet others are quite as striking for their beauty as this and the *Justicias*, *Aphelandras*, &c., already in cultivation. They were formerly here in many instances, but requiring a moist warm atmosphere, at a time when gardeners did not know how to obtain heat without dryness, they soon became sickly and died. Among the reputed species of this very genus we see in our Herbarium the *Ruellia trivialis*, *grandiflora* and *longiflora* of Salzmann, all from the woods of Bahia, every one of which is a finer species than even this. Nor are the East Indian species inferior, as is attested by the numerous kinds of *Goldfussia*, *Strobilanthes*, *Dipteracanthus*, &c., with which botanists are familiar—only, however, in their dried gardens. As they are easily propagated and grown, all these would be real acquisitions, and might be easily had."

John Ruelle, a botanist of Soissons, in France, is honoured in the generic name.



S. Holden del. & Lith.

Clematis tubulosa.

CLEMÀTIS TUBULÒSA.

(Tubular-flowered Virgin's-Bower.)

Class.
POLYANDRIA.

Order.
POLYGYNIA.

Natural Order.
RANUNCŬLACEÆ.

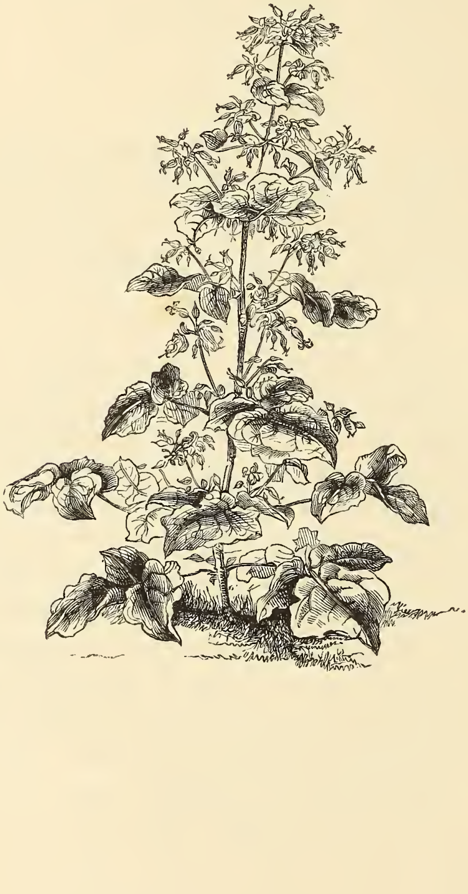
Generic Character.—*Involucre* none, or situated under the flower, in the form of a calyx. *Calyx* of from four to eight coloured sepals. *Petals,* none. *Carpels* numerous, aggregate, terminated by a long, mostly feathery tail.—*Don's Gard. and Bot.*

Specific Character.—*Plant* a hardy perennial, of an erect habit, somewhat pubescent. *Leaves* trifoliate, with long petioles; leaflets rhomboidly-ovate, somewhat lobed, mucronate, dentate, with lateral unequally-branched veins, and furnished with long, short, or intermediate petioles. *Flowers* produced in somewhat composite, terminal, and axillary corymbs. *Calyx* blue, tubular at first, but ultimately becoming revolute. *Sepals* linear-oblong, conspicuously pubescent. *Stamens* about sixteen in number, with dilated filaments. *Ovary* and *style* silky. *Stigma* recurved.—*Hooker.*

Clematis tubulosa is as great a novelty as it is a singular one. A plant entitled to the best attention on its own account, independent of its claims on behalf of the numerous family of which it is a member. The past year first found it in an inflorescent state among our collections, but it has not been known long in any condition. It has probably been introduced within the last two years, and we think has come by way of the Continent. That it is hardy its natural regions sufficiently indicate. The " Botanical Magazine " says it is a native of China; we are also informed that plants have been received from the Crimea, in Russia. In gardens its proper position is on rock-work, or in the herbaceous ground; about the former, in particular, it should find a place wherever characteristic accommodation is desired for the species. As has already been hinted, there is more about *C. tubulosa* that is remarkable than that which is beautiful, and a casual scrutiny at once pronounces it unlike the majority of its kindred. The woodcut at the end of our paper gives a sufficient idea of the general habit of this *Clematis,* and only leaves it to be observed that it is peculiarly dwarf, with ample radical foliage, and sends up a flower-stem eighteen inches to two feet. The specimen from which our drawing was taken flowered in the nursery of Messrs. Whitley and Osborn, Fulham, in September, 1846. Its increase is effected by division.

It is difficult to conceive anything more delightful than the *Clematis* family generally—the fragrance of many—the climbing character of the majority, added to the fineness of their flowers. And we have frequently had to lament that the grace and loveliness of many common species of *Clematis* is destroyed by too rigid a system of training; all climbing plants should grow as free and natural as they will, consistent with the object that may regulate the disposal of their ramifications, and this maxim cannot be too often insisted upon.

Clematis is from *klema*, a vine branch, alluding to the circumstance of most of the species climbing in a similar manner to the vine.



ON ACCLIMATISING GREENHOUSE PLANTS.

THE theory of acclimatising plants was but little thought of prior to 1823, when a paper upon the subject appeared in the "Memoirs of the Caledonian Horticultural Society," by Mr. Street, of Biel. Since that time many experiments have been made upon a great variety of plants, and opinions have been freely offered both for and against the doctrine; but nothing yet very satisfactory has come under our observation to lead us to think otherwise than that many plants, natives of warmer climates, are nevertheless constitutionally hardy enough to resist the ordinary winters of our climate, and others, when subjected to the experiment, accommodate themselves to it in a greater or lesser degree. Many plants, natives of China and Japan, are sufficiently hardy to defy the severest frosts we have of late years experienced; while others from the same extensive empire require even the heat of the stove to grow them in perfection. Collectors and importers have for the most part contented themselves with stating simply that such and such plants were found in China or Japan, without stating the latitude, longitude and altitude, and the local circumstances under which the plant flourished.

In countries extending over so great a surface as those alluded to, there is a great variety of climate, and hence we find the *Aucuba japonica*, *Corchorus japonica*, *Pæonia Moutan*, *papaveracea*, *Pyrus japonica*, *Thea viridis*, *Thea Bohea*, *Mespelis japonica*, and many others, which in the earlier days of our own experience we knew only as greenhouse plants, now cultivated as some of the most common shrubbery plants, while *Clerodendron squamatum* and *fragrans*, with many others from the same country, still require the care and temperature of our stoves. The same, but to a much greater extent, may be said of the plants of Chili and Mexico, and other countries of great extent and great difference of altitude.

It is, we therefore see, too often left to the cultivator at home, to determine the habits of newly-imported plants, and in general, to err on what may be called the safe side, they are placed in a temperature corresponding to nearly the maximum of the country from whence they came, whilst they actually existed, naturally, near to the limits of perpetual snow. Under such treatment the plants often languish out a few months, or perhaps a year or two, and finally die.

On this interesting subject we would recommend a perusal of "An Essay on the Geographical Distribution of Plants," by N. I. Winch, Esq., from which we have taken the following paragraph, which will, we think, proves that the hardiness of a plant does not depend on the temperature of its native country.

"There appears something enigmatical in the causes which affect the growth of many exotic shrubs well known in gardens and plantations; for many natives of the North of Asia, Portugal, Japan, and even of South America, resist the severity of our winters much better than many which are indigenous in Italy, the South of

France, and Germany. The strongest instances are those of the common myrtle, Pomegranate, and Oleander, all of which, though European plants, perish at a temperature no way injurious to the *Rhododendron ponticum* of Asia Minor. This, as well as the *Rhododendron maximum* of North America, is much more hardy than the Bay, or even than the Portugal Laurel; though it is probable the Pontic rose Bay may be a native of the lower ridge of Caucasus, and the American species generally grows in subalpine situations. From Pursh we learn that *Rhododendron maximum var.* 1, *roseum*, which is the variety common in our gardens, is found near rivulets and lakes in the mountains from Canada to Carolina; *var.* 2, *album*, in the shady cedar swamps of New Jersey and Delaware; *var.* 3, *purpureum*, near lakes on the highest mountains of Virginia and Carolina. The author of the 'Flora of North America' is inclined to think these three distinct species. The *Rhododendron punctatum* is also from the mountains of Carolina, at the head of the Savannah river, and *Rhododendron catawbiense* is a native of the high mountains of Virginia and Carolina, at the head of the Catawba river. The Lapland, the Kamtschatkan, the two Swiss, and two Siberian rose Bays are also alpine plants, and the same may be said of the rare species found on the mountains of Ceylon. This may, in some measure, account for these elegant shrubs withstanding our severe and changeable winters, though they will not thrive in the fenny parts of Lincoln or Cambridgeshire, or in Holland.

"On the coasts of Greece, Albania, and Dalmatia, I have observed," says Mr. Winch, "the limestone rocks covered with the Mastic (*Pistaccia lentiscus*), Myrtle, Rosemary, Laurustinus, common Arbutus, and Juniper. Of these the first and second will not survive our winters; the third, fourth, and fifth will not perfect their fruits, except in favourable situations, and when the season proves uncommonly mild; but the last ascends our mountains to the height of 1500 feet.

"In gardens and well-sheltered grounds the common Laurel of the Levant (*Prunus lusitanica*) *Prunus lauracerasus*, and Portugal Laurel flower freely; and, provided the season be mild, ripen their fruit. The Chinese Rose (*Rosa semperflorens*) and the clustered-flowering Quince of Japan (*Cydonia speciosa*), when protected by a wall, flower throughout open winters; and the latter has perfected its fruit at Wallington, and in similar situations. *Rosa multiflora*, of China; *Buddleia globosa*, of Chili; *Aucuba japonica*, *Camellia japonica*, and *Corchorus japonica*, survive our severest seasons, and thrive very well; but the Bay of Italy (*Laurus nobilis*) flowers only in the southernmost parts of Durham, and the sheltered vales of Cumberland.

On the other hand, the Provence Rose (*Rosa centifolia*) and the Officinal Rose (*Rosa gallica*), said to be from the south of France, but most probably originally from Asia Minor, and the Damask Rose (*Rosa damascena*) from the same country, are to be met with in every garden; nor is the Musk Rose (*Rosa moschata*), of the north of Africa, very scarce."

That plants become acclimatised or naturalised to our climate by any species of extra culture, such as originating young ones from seeds ripened in this country, &c.,

, we fear, to be but little depended on, at least beyond a very limited extent. uture experience and observation, made without prejudice to any particular theory, ay determine what is, at present, not well understood, but which it would certainly e a desideratum to be made acquainted with.

Many greenhouse plants will not only attain a great size and resist the cold of ur ordinary winters in one situation, while, in another, not a mile distant, the same pecies would be killed by the first sharp frost that occurs. Shelter is of much mportance, and a poor, dry, or well-drained soil indispensable in attempting to ultivate tender plants in the open air of our climate. The common Laurel, which ow flourishes in the most exposed situations, when first introduced to this country, vas considered so tender, that the plant was covered over every night, during winter, vith a blanket. The Laurel is no more hardy now than it was then; for had it been lanted out in a moderately sheltered place, it would have stood the winter without hat protection.

"I find," says Mr. Street, in 'Horticultural Transactions,' "that poor, dry, and hallow earths and declivities are particularly well adapted to preserve many plants hrough the winter season. The quicker the superabundant fluid passes away from heir roots the better. When excess of rain, or moisture, and severe frosts, happen early together, plants generally suffer much more than by dry frost. If the situa-ion of the plants be dry, frost does not hurt them so soon as if it were wet." Mr. S. conjectures that many plants are capable of enduring a more uncongenial climate r situation than that of their native place of growth; and also that plants obtained rom cuttings are better adapted for this purpose than those originated from seeds. In regard to the former of these opinions, we are perhaps not exactly aware of the ircumstances under which they exist naturally; and in regard to the latter, plants rom cuttings may grow in some cases less luxuriantly than from seeds, and hence, the wood and buds become more fully ripened or matured, and consequently better able to resist the cold of winter.

In planting out exotics, with the view to establish them as open-air plants, he prefers to plunge the pots into which they grow, leaving the hole in the bottom open for the escape of the roots, and also planting over drains, where the roots will be kept dry.

In our own experience, we have found many exotics succeed by being left in the flower-garden borders during winter, having a thin layer of finely sifted coal-ashes laid over the surface of the ground as far round the stem as the roots were supposed to have extended. Covering others with a common flower-pot inverted over them, and occasionally during fine days removed, answered well with others. But the best and most convenient, as well as neatest manner, is covering them with large sea-kale pots, leaving the top or moveable part off generally during the day, and placing it on again during the night and in very frosty weather. Such plants as are planted out for this purpose, should be rendered dry at their roots, by placing under them a stratum of lime-rubbish, broken bricks, or small stones. This not only protects the roots from damp, but prevents them growing too luxuriantly, which they usually do, particularly towards autumn, when the branches and wood being in a very succulent and immature state, they are injured by the frost.

Many cultivators err exceedingly by planting exotics against walls having a southern exposure. This is no doubt a very proper situation for Chrysanthemums, which require a prolongation of season to perfect their flowers, and also for bulbs and herbaceous plants, which die down to the ground annually; but it is the worst possible situation for woody plants, because the warmth of the vernal sun excites them into a growing state too early in the season, and renders them liable to be destroyed, or at least very much injured by the late spring frosts, to which we are so liable in May and often in June. A north-east or west aspect is much better. According to Mr. Street's experience, small plants resist the cold better than larger ones; while Mr. McNab, who has been unusually fortunate in the cultivation of exotics in the open air, recommends old and more fully grown specimens for this purpose.

Upon the whole, so little, comparatively, is at present known of the degree of frost that different plants, even from the same countries, will bear with impunity, that it is advisable to plant out every duplicate that would be otherwise thrown away from most collections, and record the success; for we have often found that species, which we had calculated would stand the winter, have failed, while others that we did not expect have remained uninjured.

The following are recorded in the "Gardeners' Magazine" as having stood the winter at the following places :—

Nerium Oleander, grows luxuriantly without protection, in the neighbourhood of Swansea, Wales.

Myrtles, at Barronhill, Isle of Anglesea, 18 feet high, without protection.

Edwardsia chrysophylla, at the same place, has attained the extraordinary dimensions of two feet in circumference and twenty feet high.

Hydrangea hortensis, prospers well in most situations, and if cut to the ground shoots up again with great vigour. One at Tringwainton, near Penzance, Cornwall, is recorded to be 45 feet in circumference, 8 feet high, and to have had at one time no less than 1300 flowers upon it.

The following exotics stood out for several years prior to 1838, in the Claremont Gardens :—

**Aloysia citriodora survives most winters uninjured, and is only killed to the surface when the thermometer indicates 12° of frost.

*Alstrœmeria, ten species in a border in front of a plant stove, and several of them in the open flower-border.

*Albuca major and minor, in dry warm border in front of plant stove.

*Agapanthus umbellatus, at the bottom of a south wall.

Aster reflexa,
— tomentosa, } in the flower-borders, partially sheltered by a cedar tree.

*Amaryllis, many species and varieties, in a dry warm border in front of the plant stove.

*Arctotheca repens has escaped from the open border into the grass walks, from which it appears to be difficult to eradicate it.

**Acacia dealbata, upon a south wall, but extending several feet above it.

**Bignonia capreolata, on walls with both south and west aspects.
— grandiflora, on ditto ditto
Bouvardia triphylla, under shade of a cedar tree.
Calceolaria, many species, and above one hundred varieties, in the open border.
*Canna Indica, in border in front of plant stove.
Coronilla glauca, in flower-garden borders.
**Clianthus punicea, in sheltered borders.
**Calampalis scabra, against a west wall, and in the borders.
*Calla æthiopica, in flower-garden borders.
*Colettia serratifolia, in flower-garden borders.
*Chimonanthus fragrans,
— *grandiflora,
— *parviflora, a new species (?) } growing as quite hardy shrubs, the two former producing seeds.
*Cistus, several species, both in the flower-garden borders and distributed through the pleasure-grounds.
*Cyclamen, several species, in a dry warm border.
Camellia, several varieties, a few feet from a wall.
**Davana dependens, in flower-garden borders.
**Deutzia scabra, in ditto.
**Escallonia glandulosa,
— **rubra,
— **bifida,
Edwardsia sp., } cultivated in various stations as quite hardy shrubs.
*Eucalyptus perfoliata, on a west wall, seeding abundantly.
*Eucomis, several species, in dry warm border.
*Erythrina crista-galli, in border in front of plant stove.
**Fuchsia, all the genera excepting *arborescens*, and many varieties killed to the ground annually, excepting *F. discolor*, from Port Famine, which has only its small twigs cut with the frost. They, however, shoot up very vigorously in spring, and flower better than if they had not been cut down.
Gnidia simplex, in the flower-garden borders and pleasure-ground shrubbery, in dry soil.
Gayania ringens,
— uniflora, } in flower-garden borders.
*Glycine sinensis.
Geranium flavum, triste, lobatum, millefoliatum, &c., in a border in front of the stove.
Hibberta grossularifolia.
**Hydrangea hortensis, in flower-garden borders.
— **quercifolia, against a wall.
Heimia myrtifolia,
— linarifolia, } in open borders.
*Illicium floridanum,
— *parviflorum, } in shaded shrubbery.
**Lobelia tupa, in border at end of plant stove, seeds freely.
— **purpurea, in ditto.
Linum flavum,
— **trigynum, } in flower-garden borders.
Lagerstrœmia indica, on a south wall. A large plant of this species existed for many years upon a wall in front of one of the greenhouses in the Kensington Nursery.
Lavendula stæchus,
— dentata,
— viride, } in flower-garden borders.
Lythrum virgatum, in the open borders.
**Lonicera flexuosa,
— japonica, } the former quite a hardy creeper, the latter upon a south wall.
Medicago arborea, in flower-garden borders, a fine open shrub, partially sheltered by a cedar tree.

Mesembrianthemum perfoliatum,
— forficalum,
— vaginatum,
— spinulifera,
— curtum.
Many other species of this beautiful and extensive genus has stood several winters in the open borders, but our memoranda of them has been mislaid.
Myrsine africana,
— retusa,
in the open borders in the shrubbery.
Mimulus glutinosus, in the flower-garden borders.
Myrtles, several varieties, both against the wall and in the open borders.
Nega gracilis, in the open borders.
Olea fragrans, against a west wall in a pot plunged in the border.
**Oxalis, many species in a dry warm border in front of hothouse.
Opuntia vulgaris and Ficus indica, in dry lime rubbish.
**Pittosporum Tobira, in the shrubbery in the pleasure-ground for the last ten years or longer.
Psoralea palæstina, in the flower-garden borders.
Photinia glabra
„ serrulata
in the flower-garden borders.
*Phormium tenex, in flower-garden.
Polygala speciosa, against a south wall.
Pistacia Lentiscus, in pleasure-ground shrubbery.
**Rubus rosifolius, in front of a south wall.
Salvia Grahæmi,
— Chamædrifolia,
in flower-garden borders.
*Tropæolum tricolorum,
— *pentaphylla,
— *brachyserus,
in a warm dry border in front of plant stove.
**Thermopsis nepalensis, in open borders in various situations, attaining the height of 10 feet, and producing seeds annually.

It will appear sufficiently clear that the foregoing list was drawn up before the intense frost of January, 1838, when the thermometer in the gardens at Claremont indicated 12 degrees below Zero, a degree of cold not experienced in England for many years; yet, notwithstanding, those plants marked (*) in the above list, withstood its rigour, and those marked (**) were only killed to the surface, and came up strongly in the following June. C. M.

MARTYNIA FRAGRANS.

The season having now arrived for sowing tender annuals, we beg to remind our readers of that beautiful species the Martynia fragrans, which was introduced some years ago to Mr. Marnock, from Mexico. It is very justly remarked by Dr. Lindley to be one of the handsomest annuals that has been brought into this country for many years. It has a solitary stem, which begins to flower when at the height of a foot, and continues branching, and flowering from all its branches, till it forms a specimen three feet high, and the same in diameter; the foliage is large and copious, and the flowers are borne on upright racemes. In form and colour they resemble those of *Gloxinia rubra*, but the red is much darker, and mixed with a bright purple tint; the throat is also marked with yellow; and, in addition to their beauty, the flowers are highly fragrant, perfuming the air for a considerable distance with an odour resembling violets. In every respect this plant is peculiarly fitted for ornamenting the greenhouse and conservatory, growing into a very compact bush, with nothing straggling or littery about it. With such a character, and so many charming qualifications, it is to be regretted that so little is seen of this plant, and so few cultivate it throughout the country. When we inquire for the reasons of this omission, the answers generally are, that the plants being in so few hands, the seeds are scarce and dear, seldom come up when sown, while those which do come up are difficult to keep alive, and require more heat to make them flower than can be given, except in extensive places, where heat and time can readily be afforded. Although these answers contain some facts, they yet lead us to the belief, that the culture of this beautiful plant is not so well understood as we could wish it to be. Under this impression we submit the following hints on the subject. Having obtained the seeds, prepare to sow them as follows:—

Soil.—Take a portion of sandy heath-mould, and mix it well with plenty of sharp white sand; select a pot in which a small bell-glass will stand; fill the pot half-full of broken crocks as drainage, and the remainder with the soil broken very fine, pressing it with the hand as firmly and evenly in the pot as you can, until within half an inch of the top.

Seeds.—Previous to sowing the seeds, soak them in tepid water until the outer skin becomes somewhat softened, which may, perhaps, occupy an hour, after which take them from the water and divest each (carefully, so as not to injure the radicle,) of the outer black coat; when this is done, they must be immediately sown.

Sowing.—Place the seeds upon the prepared soil, and cover them with a quarter of an inch of soil, pressed as before, put on the bell-glass, place the pot in a saucer of water, put it in a cucumber frame, or other place where there is not less than 70 degrees of moist heat, and no more care is required until the plants make their appearance, which will be in about ten days.

Seedlings.—When the plants are fairly above the soil, slightly prop up one side of the glass, to admit a small portion of air; keep the saucer beneath the pot supplied with water, but, however dry the soil might appear on the surface, never, under any consideration, either previously or in this stage of growth, pour water over the soil; the loss of more or less of the plants would certainly be the consequence. As the plants increase in size, give more air, and when they have become pretty strong, take off the bell-glass altogether.

Potting-off.—When the glass has been removed two or three days, proceed to take up each plant carefully, and pot it in a small pot, with the same soil in which the seeds were sown: do not water overhead, as is customary with newly potted plants, but plunge the pots at once into a brisk hot-bed, where there is a very moist atmosphere, and cover them with a hand-glass for two or three days, until they have begun to grow, after which the glass may be taken away. In all after pottings, give them exactly the same treatment as Balsams and Cockscombs.

THE APPROACH OF SPRING.

Spring is advancing! and the sun's rays will shortly scatter the gloom of winter, and again clothe vegetable nature in its bright and cheerful dress. Choice plants in pots, which have stood for months in their winter quarters, now begin to show signs of returning growth. Some of these, although not, generally speaking, difficult to cultivate, yet possess some peculiarities which, if not understood, may puzzle the amateur, by not only preventing the pleasure of seeing them flower to perfection; but even their state of health may be such, with all the attention paid to them, as to disfigure rather than ornament the buildings in which they are placed.

Amongst these may be noticed:—

Brownea grandiceps and *coccinea* (see Mag. Botan., viii., page 130, and ix., page 213).—Few vegetable productions can exceed the splendour and elegance of these truly magnificent plants when in flower. The blossoms are borne in immense bunches near the extremities of the branches, and when expanded the plants appear clothed in complete masses of vivid scarlet and crimson, too brilliant for the eye to rest upon. But in how few collections are they thus found, and how common is it to see them ragged and partially leafless, even under what would appear the very kindest treatment! Both the species are of very slow growth, and their foliage is exceedingly susceptible of injury, and being natives of shady thickets of the West Indies, they will never endure full exposure to the rays of the sun. Heat, shade, moisture, and occasional sprinkling overhead with tepid water, are their requisites during the season of growth—and a dry, cool temperature, with very little moisture to their roots during the season of repose. A treatment very similar to that given in an orchid-house may be taken as a guide. Drought and exposure to the sun in summer, and much heat and moisture in winter, are sure to destroy the foliage and prevent vigorous growth.

Barringtonia speciosa and *racemosa.*—Both splendid plants, with fine, large shining leaves, and showy flowers; but they are very scarce, and are seldom seen in so flourishing a condition as could be wished. In India, they luxuriate on the borders of small rivulets, where, for part of the year, they derive the full benefit of powerful heat and excessive humidity; and during the dry season, when the streamlets are no longer replenished with water, they are exposed to some degree of drought, but never to a low temperature. Strong heat, and a very moist atmosphere are required, to keep them in a healthy growing condition; 70 or 75 degrees is sufficient for the present, but as the season advances, the heat may be increased to even as high as 100 degrees; but the plants must be partially shaded, and the atmosphere be nearly at the point of saturation. Bottom-heat is also beneficial. In their season of repose, it is safer entirely to withhold water from the roots, and also to keep the leaves dry. The winter temperature must never fall below 60 degrees ahrenheit, and should never exceed 65 degrees. For further particulars, refer to Mag. Bot., vii., page 261, and x., page 241.

Butea frondosa and *superba* are also plants of great splendour, with scarlet, pea-haped flowers, not unlike those of Erythrina; no stove collection should be without hem. They require to be started into growth this month, by giving an increase of emperature, and a corresponding humid atmosphere. With the exception of shade, which these plants scarcely require, the treatment of *Brownea grandiceps* and *racemosa* will exactly suit them.

Brexia madagascarensis.—Almost all failures in growing this plant to perfection may be traced to giving it too little pot-room.

Bryophyllum calycinum.—A succulent found in almost every old collection, of easy growth, but rarely seen in flower. Plunge the pot containing it up to the rim n a hot-bed, and give little or no water. If there is a good heat kept up in the bed, it will very soon show abundance of flowers. Then remove it to any part of the stove you deem best, and it will continue blooming for a long time.

Calyptranthes.—Although the species of this genus were introduced many years ago to our collections, they are now scarcely to be found throughout the country. The chief difficulty in their cultivation has been a want of knowing the mode of increasng them. Cuttings of the ripe wood should always be put in at the end of September, and stand through the winter in a dry, cool place. During the present month, introduce them into a strong moist heat, plunging the pots up to the rim, and they will strike with the greatest freedom. This is also a proper time to make layers; the parent plant must be introduced into a house or pit, where the pots containing the layers can be plunged in a hot-bed where there is a brisk heat, and the success will be rapid and certain.

Ixora coccinea, crocata, &c.—Although the different species of this lovely genus have been so often noticed before in the volumes of this work, it may not be amiss again to mention, that one of the chief reasons why these plants suffer so often during the winter, is, their being placed too near a flue, or other dry heat, in which situation they require to be often watered, and this exposing them to so many alternations of drought and moisture, finally injures the roots, or perhaps kills the plant. The best situation during the season of repose is a rather cool and shady part of the stove, where they will seldom require watering, and where the soil can be allowed to become partially dry. This is the month to set them growing; the same treatment as recommended for *Brownea grandiceps*, will suit them well. Plunging the pots in a hot-bed is sometimes resorted to, but always with bad success; the roots are too susceptible to admit of this with impunity.

Of greenhouse species we may notice *Angophora cordifolia* and *lanceolata*, two very handsome species, both shy of flowering until they arrive at a large size. If they are now subjected to stove heat for a month or six weeks, they will form flower buds; they may afterwards be removed to their former quarters in the greenhouse.

Astelma eximium is a very beautiful flowering plant, the leaves of which are covered with a soft downiness: if exposed to syringing, too much moisture is retained and both stem and leaves often perish. In other respects, the culture is simpl and easy.

Burtonia conferta.—The species of this genus are all very impatient o moisture at their roots; the remedy is, to put plenty of drainage at the bottom o the pots, and water with care.

Calodendron capensis.—The scarcity of this plant entirely arises from the diffi culty with which it is propagated. It is always the best to plant the cuttings in pot of sand immediately on separating them from the parent plant, and never allow ing the leaves to flag.

Canarina campanula and *lævigata.*—These being herbaceous plants, when th tops die down in the autumn, place the pots in a cool situation, where they shoul receive no water. Now (March) repot and place them in the heat of the stove unti they show flower, when they may be removed to the greenhouse, where they wil flower profusely.

Cyphia phyteuma.—The tuberous-rooted species must be kept quite dry whils the tops are dead; about the middle of this month repot them, and as soo as the young shoots are long enough, take them off for cuttings; lay them aside fo a few hours to dry up the wounds, afterwards pot them in light soil, but do no cover with a glass, as the condensed moisture usually kills them.

Crowea saligna.—This plant is often ragged and unsightly; this is occasione by its being crowded amongst other plants. Always set it in a dry, airy, and expose situation; give good drainage, and water with care.

ON MR. WARD'S METHOD OF GROWING PLANTS IN CLOSELY-GLAZED CASES.

Mr. Ward's interesting discovery of the means of growing plants in close glazed cases, ought to be hailed with much satisfaction by the floriculturist, as it ha opened an entirely new era to the cultivation of exotics, and gives him promise o possessing a large portion of those tropical plants in a living state, that at presen he only knows by an obscure description, or at the best by an ill-preserved specimen

It is almost needless to reiterate the laments of botanical collectors after thei return from a long and painful pilgrimage, in search of floral varieties, at witnessin the vast gaps in the collections they have sent home, and to hear the almost con stant observations of the parties to whom their plants or seeds were transmitted:— "Yes, sir; I am sorry to say, that from the great length of time the vessel was o her voyage, and the inattention the plant-cabins received while on board, hardl anything reached us alive." But better times have been brought about, both for th botanist and for the cultivator. The perseverance of Mr. Ward, in following ou s system, has enabled him to receive from the most distant parts of the globe, ants that had never before been introduced alive into this country, and conseiently leads us to hope, that the more rare vegetable productions of other countries ay now be safely transmitted to our own.

The great recommendation of this system is the simplicity of it, and the little ouble that it gives to the seamen; for when once the plant-cabins are placed on a cure part of the deck, *i.e.*, where they will not be exposed to danger by breakage, ie seaman has nothing further to do with them, the only requisite being, that ley should be placed in a situation where they are exposed to the greatest possible iare of light; the poop of the vessel, consequently, being the most eligible situaon for them, and also where they are least likely to be—what is a great fault in a ilor's eyes—in the way.

The reader will find, in the "Companion to the Botanical Magazine," for May 836, a letter from Mr. Ward to Sir William Jackson Hooker, Regius Professor of otany at Glasgow, in which the original discovery and the results of it are fully etailed. In a letter, which the writer of this received from Mr. Allan Cunningham, ie Australian botanist and traveller, dated Sydney, New South Wales, the 19th of 'ebruary, 1837, he says:—"The two cabins of plants that Messrs. Loddige's kindess supplied me with, were landed yesterday in fine condition, and I am gradually dapting them to the high dry temperature of the colony at this season,* the thernometer (Fahrenheit) being 85° in the shade. The Primroses, Daphnes, Daisies, c., &c., have all survived."

The eligibility of the plan, and the facility with which it can be put into execuion, render it merely necessary for me to give a description of the best form of abin, and the method of filling it with plants, to insure a healthy arrival at its lace of destination. The form of the cabins cannot be better than that usually mployed for the conveyance of plants from abroad, viz., in the shape of a *span-house*, which will be the best means of affording the plants the greatest possible light; for, n that circumstance, and I am almost warranted in saying, on that alone, depends he chance of the safe arrival of the plants, always supposing that they have been roperly planted in the cabins in the first instance. The size ought not to be too arge, because a cabin that two men can lift stands a much better chance than one that equires a tackle to move; therefore, the length had better not exceed three feet six nches, the breadth twenty inches to two feet, and the height about two feet six inches; ut that must all depend, principally, on the kind of plants that are inclosed in it. The abins should be strongly made of inch or inch-and-a-quarter board, and the lights accuately fitted to the sides and ends, so that when the plants are planted they may be ecurely screwed (not nailed) down. The glazed portions of the cabins will be much more ecure if a wire-work is fastened over them. The bottom of the cases should be trewed with gravel or small stones, to allow of draining; otherwise the tender fibres of the roots, the great source of nourishment to plants, will become damaged. A the lower part of the cases there should be a hole with a plug to draw off any supe fluous moisture that may accumulate. The plants when first placed in the case should be well watered, as much to settle the soil round their roots as to refresh the after transplanting; the water that will drain through the mould had better be draw off at the plug hole; they are then to be carefully closed up, and there is but littl doubt that they will reach their final destination in perfect health. In all th instances that have come to my knowledge, where the cabins have been fully expose to the light, the results have always been most favourable; but where, from ove anxiety, the cabins have been placed below, in darkness, they have literally bee killed with kindness, for the course pursued has invariably proved fatal to the vitalit of the plants.

---

* The end of summer in the southern hemisphere. The plants were put in the cases early in October 1836, and left England the last day of the same month.

As a medium for the conveyance of seeds, these cases will also become extremel valuable, for it is well known there are many seeds whose vital principle is rapidl destroyed by exposure to the atmosphere; but in this manner an opportunity i afforded of preserving those seeds which travel badly, and by the time they reac England germination has so far advanced as to allow of their being transplante with safety. By the above means the Messrs. Loddiges were enabled to procure large stock of that very beautiful Australian palm *Corypha australis*, and many othe equally rare and valuable plants, whose seeds rarely, if ever before, germinated i this country.

ON THE CULTIVATION OF CHINESE CHRYSANTHEMUMS WITH AN ARRANGED LIST OF SORTS.

THAT the whole of the Chinese Chrysanthemums will live in the open air o this country in moderately sheltered gardens, and that they will produce their flower when trained against walls, is admitted. But it very often happens that they ar cut off by early autumnal frosts just when they are coming into their greates perfection. To remedy this defect, we would purpose to grow two sets of plants one set planted against a south wall, as being the best for bringing them early int flower, and the other set grown in pots, to be removed into the greenhouse, conservatory, or even cold pit, upon the first appearance of winter. The plants for the latter purpose should be propagated by cuttings annually, and these having produced their flowers in the greenhouse, should be planted out the following spring, to flowe against the wall.

The beginning of April is a very proper time for putting in cuttings of Chrysanthemums which are intended to flower the ensuing autumn, and the cuttings should be taken from the top shoots of the last year's plants. These, when prepared, should be about three inches long, and should be planted into pots of the size called small sixteens, one cutting into each pot. The soil for this purpose should be one half loam, and the other half peat, adding a little sand should either of these be deficient in that material. When planted, the pots should be placed into a pit or frame, upon a mild bottom-heat, in which they will root freely in about three or four weeks. When rooted, the plants are removed into a cool frame to harden them, and fit them for being placed in the open air. About the beginning of June they will require to be shifted into larger pots, of the size called forty-eights; after which, they are to be arranged in the open air, upon a piece of ground prepared for them, in a dry and airy situation. While here, they should be watered frequently with liquid manure; but not plunged, as in that case they would be likely to send their roots down into the soil, and these would be injured whenever it becomes necessary to move them. Soon after the above second potting, the tops are pinched off the plants, to cause them to branch out into good bushy heads; but it is to be strictly observed, that no more branches be allowed to remain than the plants are likely to support. In August they are shifted a third time into thirty-two sized pots, and set sufficiently apart from each other at this time, to allow a free circulation of air passing through amongst the plants, which should be occasionally moved to prevent their roots from entering into the ground upon which they stand. The mould used for this third and last potting should be both strong and rich, that is, strong loam and dung well blended together. It has been recommended to reduce the number of flower-buds with a view to increase the size of the individual flowers, but unless for some particular purpose this practice is unnecessary. No doubt but that by doing so the size of the flowers would be a little enlarged, but it is questionable whether a greater number of flowers, if even of somewhat less a size, would not produce a much better effect. In arranging Chrysanthemums in the greenhouse, some degree of taste should be displayed, by a proper disposal of the different colours, sizes, and habits of the plants.

The flowering season of this family may be considerably lengthened, by judicious management in bringing them into the house; thus, for example, the early-flowering sorts should be taken in first, and that soon after they have formed their flowers; as these decay, the next in order of flowering should be taken in to replace them, and so on, leaving the latest of all to be taken in last. To prevent these from sustaining injury from early autumnal frosts, it will be well to remove them into a cold pit or other sheltered place in time, giving plenty of air during the day, and otherwise retarding rather than forcing them into flower.

By an arrangement of this kind, a display of these varied and beautiful flowers may be kept up from the beginning of October till the end of December,—three months more scanty of flowers than any other during the year. The following list includes some of the finest varieties of this family. But the Chinese possess many varieties which have not reached this country, and are in the habit of rearing them from seed, their climate being particularly favourable for that purpose. A nurseryman in Jersey has also succeeded in obtaining a number of varieties, the flowers of which are certainly, in many cases, improvements on the varieties already in cultivation, and lead us to hope that still further improvement may be made in this department of floriculture.

SECTION I.

Ranunculus flowered.

Blush Ranunculus flowered
Buff, or Copper
Expanded Light Purple
Pale Pink
Park's Small Yellow
Pink or Lilac
Quilled Light Purple
Small Yellow
Spanish Brown
Windsor Small Yellow
Yellow Waratah

SECTION II.

Incurving Ranunculus flowered.

Curled Blush
Curled Lilac
Large Quilled Orange
Quilled Pink
Superb White
Two-coloured incurved

SECTION III.

China Aster flowered.

Clustered Pink
Early Blush
Early Crimson
Paper White
Sulphur Yellow
Two-coloured Red

SECTION IV.

Marigold flowered.

Brown Purple
Changeable Pale Buff
Golden Lotus flowered
Golden Yellow
Late Pale Purple
Pale Home Yellow
Starry Purple
Superb clustered Yellow

SECTION V.

Lossal flowered.

Changeable White
Large Lilac
Late Quilled Yellow
Old Purple or Crimson
Quilled Flame Yellow
Quilled Salmon
Quilled White
Quilled Yellow or Straw
Tasselled Lilac
Tasselled White
Tasselled Yellow.

SECTION VI.

Half-Double Tasselled flowered.

Semi-double Pale Buff
— Quilled Orange
— Quilled Pale Orange
— Quilled Pink
— Quilled White
— Quilled Yellow

SECTION VII.

Wheeler's British varieties.

Changeable Yellow
Clustered Blush
Dwarf Pale Rose
Expanded Crimson
Expanded Rose
Flat Pink
Grooved Light Purple
Incurving Pink
Rosy Purple
Sanguinea, or Blood Red
Starry Blush
Wheelerianum

FLORICULTURAL NOTICES.

NEW OR INTERESTING RECENTLY FLOWERED PLANTS, IN THE PRINCIPAL METROPOLITAN NURSERIES AND GARDENS.

Aca'cia squama'ta. From the Upper Clapton Nursery (Messrs. Low's) this plant was sent last month to a meeting of the Horticultural Society in Regent Street. It is an open, very slender-branching species, with very slender alternate leaves, at whose axils the flowers are borne. These are yellow, and produced very freely ; but there are seldom more than two at each leaf expanded at one time.

Anse'llia Africa'na. A noble specimen of this plant is now blooming in the nursery of Messrs. Loddiges. It consists of upwards of a dozen pseudo-bulbs, some of which are just issuing their panicles of blossom, and others already bear expanded flowers, whose rich yellow labellum and dark brown spotted sepals and petals give the plant quite a gay—while from the drooping of the panicles is derived—a graceful aspect. The vigour and freedom with which *A. Africana* flowers add greatly to its attractions.

Aza'leas. In one of the greenhouses of the Horticultural Society's gardens, *A. squamata* and *obtusa* are flowering finely. In habit both these species are dwarf and compact. The latter has small dark rich scarlet flowers, but produces them most profusely. The former also flowers freely. Its flowers are described in another page. Both are interesting additions to the many kinds already in cultivation.

Co'rrea. A beautiful *Correa*, a hybrid variety, is flowering at Messrs. Henderson's, Pine-apple Place. With them it at present is only distinguished from others by the No. 23. Its foliage is very neat and small, clear green, and therefore minus the rusty appearance so common to members of this genus. The chief peculiarity of this variety is the long peduncles of its flowers ; they are about an inch long, and so slender, that the least movement of the plant, or of the atmosphere in its vicinity, occasions a trembling in the whole of the flowers. The latter are a reddish orange colour.

Cymbi'dium Mastersia'num ? The Messrs. Loddiges are flowering a *Cymbidium*, which they suspect to be this species. The specimen blooming is a fine one, has leaves about two feet long and not more than an inch wide, it is sending out several racemes of flowers that are borne in pairs, and are as large as the blossoms of *Cattleya Harrisoniæ*, pure white, with a dash of yellow down the centre of the labellum. It is a very superior species.

Da'phne Fortu'ni. This interesting plant is bearing its delicate lilac flowers most prodigally in the garden of the Horticultural Society. It blossoms in a leafless state, but notwithstanding is an acquisition to the greenhouse at this season.

Dendro'bium specio'sum. In the last-mentioned establishment this extraordinary Dendrobe is flowering very finely. The specimen is a fine one, approaching five feet in diameter, and has nineteen spikes of bloom, proceeding from as many pseudo-bulbs, that average two feet in length. One of the largest spikes bore more than a hundred blossoms. The latter are yellow and sweet-scented, and when produced as they are by the specimen in question, are very ornamental.

Læ'lia supe'rbiens. On the introduction of this plant to our country it was remarked to be the most gorgeous of its genus, or indeed of any of the Orchid family. The celebrated specimen in the possession of the Horticultural Society has this season flowered in a manner which testifies that character is a just one. It has had nine flower-scapes, averaging six feet or thereabouts in height, each bearing a large cluster of flowers on its summit. One of them had as many as thirteen blossoms.

Leschena'ultia obla'ta. This plant is well deserving of attention, not only as blooming this time of year, but also for the profusion, large size, and brilliant colour of its flowers. It is more robust in habit than *L. formosa*, and has flowers of a bright flame colour. Another variety, whose flowers are paler and smaller than those of the above, but an equally profuse bloomer, we noticed with that species in the Nursery of Messrs. Frazer, Lea-bridge Road.

Onci'dium la'cerum. A species differing from *O. Ceboletum* in having pendulous, longer, and more slender pseudo-bulbs. The flower-scape is about two feet high, and bears abundance of blossom. We observed flowering plants at Messrs. Loddige's and in the collection of Mr. Beck, Isleworth.

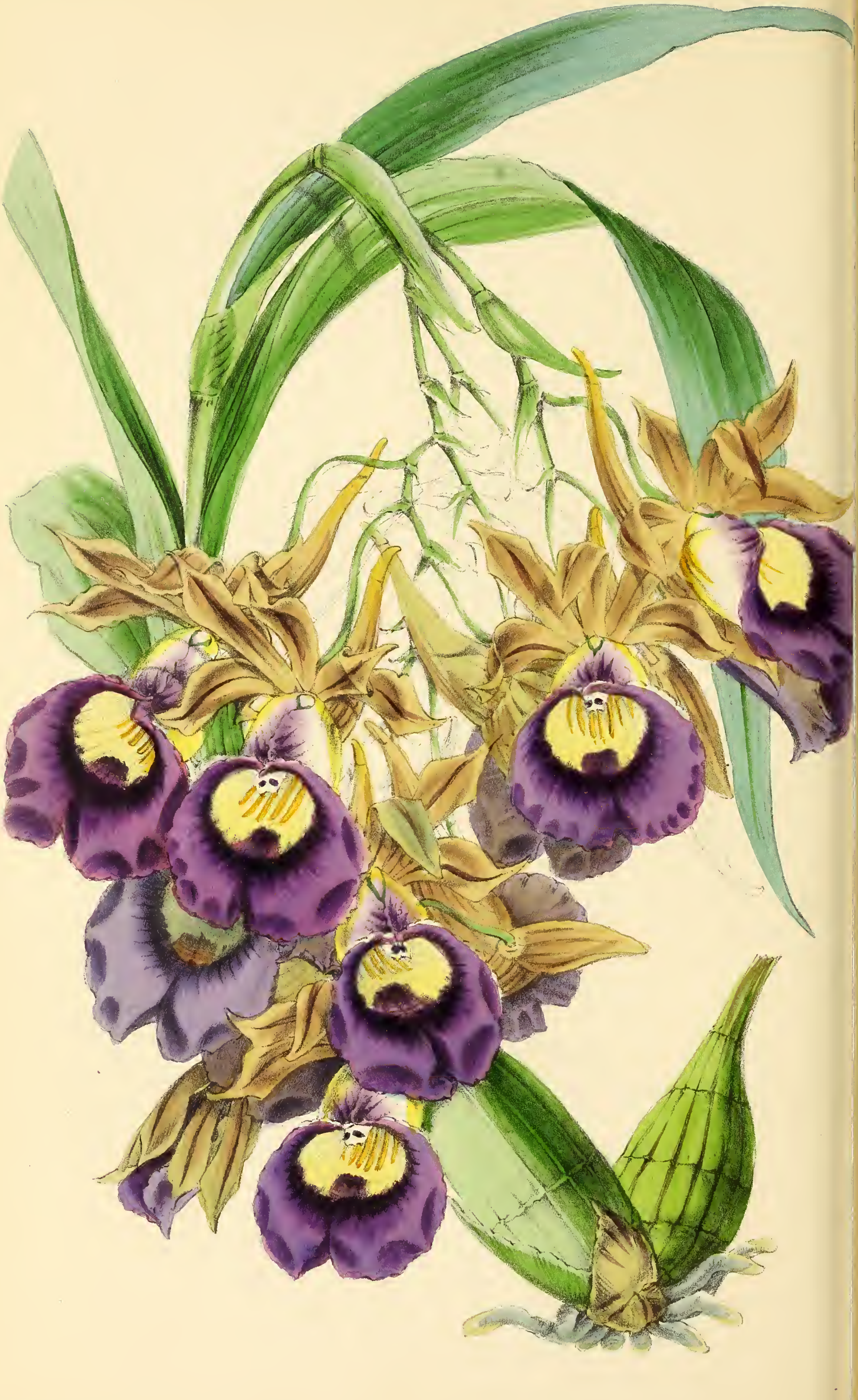
OPERATIONS FOR MARCH.

Those who have the cultivation and charge of Exhibition specimens would do well to be very careful they are not neglected at this season.

Potting and shifting, in most plant places, is still the business of the day, and should be zealously pursued ; one conspicuous feature being diligence in the operation, and another, an indulgent allowance of root-room for the plants. These processes completed, Orchids and other stove plants must have assiduous attention ; be properly trained, provided with suitable support, have their shoots thinned, and be well protected from the ravages of insects. Specimens growing in the open borders of houses, and large ones in pots, have great need of the latter directions being remembered in reference to them. Continue to give a thorough occasional soaking of water, and, at times, liquid manure to old plants, and favour such young ones also, of all kinds, as will bear it with the regenerator recommended. Propagation by seeds and cuttings must have full attention this month. There are many things that will strike root freely now, which will not do so with equal readiness hereafter. Some of the more choice annuals usually raised to flower in pots must be sown soon, as well for that purpose as for filling up borders and beds. A general sowing of tender annuals may be effected as soon as possible, where accommodation will admit of their being potted off in time, and afterwards properly treated. Hardy annuals, too, if they are wished to flower at the usual season, should also be sown, either in their final places or in some sheltered position, to be hereafter planted out. Let justice be done to seeds of valuable plants : not only should it extend to their sowing, but to after tendance. Increase of flower-garden plants by cuttings, and hardening those established off, should be pursued, where the former is necessary, and the latter hitherto neglected. *Dahlia* tubers may be put where they will begin to move, the early part of this month. For general cultivation, the period is quite soon enough. Nothing is gained by having plants of this showy and popular flower a large size at planting time.

The period is now close at hand when forced flowers will be superseded by a crowd of plants whose blooming season is approaching. Still favourably regard the remnants of the forcing-house notwithstanding, not only on account of their blossoms, but likewise because the plants will do to aid in cheering another year with their floral beauties. Numerous choice Orchids bloom at this time of year : do not neglect them, but have a keen look-out that no injury happens to the inflorescence in any stage of its development.

In the out-door department, it will be wisdom to endeavour to complete whatever work may be standing over from any cause ; but the work of the season must not be neglected to enable that to be done. The winter we are just leaving behind may have committed some ravages among rather tender things, young hardy shrubs, &c. Let an examination be made, and steps taken according to its result. Whatever planting remains to be done should be attended to with all despatch ; that planting, we mean, which has been occasioned by an extension of premises or alterations, and which may consist in the removal of hardy shrubs, trees, &c. Putting out also whatever will bear the open air should have due attention, as much to make room where space is often valuable at this season, as for the welfare of those things that are thus disposed of permanently. Prune Roses and other flowering things at intervals of a fortnight or so for the next two months, to insure a succession of flowers. Masses of evergreens, hedges, &c., may be pruned to any extent in the course of this month ; and perhaps they are best pruned at this season, as they soon recover by a young growth the favourable appearance pruning may have destroyed. Preparing flower-ground, gravelling walks, edging, and otherwise getting them in good order, laying Box and other edgings, is business that must have its proper amount of attention.



S. Holden, del & lith

Galeandra Baueri

GALEÁNDRA BAUÈRI.

(Bauer's Casque-Wort.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDÀCEÆ.

Generic Character.—*Perianth* spreading or connivent. *Sepals* petaloid. *Lip* funnel-shaped, spurred, sessile, and without fringe on its edges. *Column* erect, with membranous wings. *Anthers* casque-like. *Pollen-masses*, two. *Leaves* plaited. *Scape* radical. *Raceme* terminal.

Specific Character.—*Stem* simple. *Leaves* lanceolate, three-nerved. *Sepals* five, linear-oblong, acute, of a green colour, mixed with brown. *Lip* large, notched round the edges, purple.

This pretty Orchid is a native of various districts in Mexico, from whence it was first introduced some years ago. There have been several varieties of this species collected, some of which are very inferior to the specimen figured. Although the flowers are not rich in colour, the plant possesses several excellencies—and not the least is its very prolonged blooming season; the flowers begin to expand towards the close of summer, and continue opening in succession, if the temperature is favourable, until nearly Christmas. They are also produced in great abundance, with merely ordinary care and trouble; and by continuing to flower so late in the season, the house is greatly enlivened at a time when flowers are generally becoming scarce.

In cultivation it requires a high temperature, with abundance of moisture, when in active growth; and of course to be kept rather cool and dry (like other Mexican species), when at rest. It grows freely, potted in rough fibrous pieces of heath mould, with a copious drainage of potsherds and charcoal, or even attached to a block of wood; and certainly deserves to be in every collection. The plant from which our drawing was made flowered in the splendid collection of Messrs. Loddiges last autumn.

The generic name is derived from *galea*, a casque, and *aner*, anther.

ANDRÓSACE LANUGINÒSA.

(Shaggy-leaved Androsace.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
PRIMULÀCEÆ.

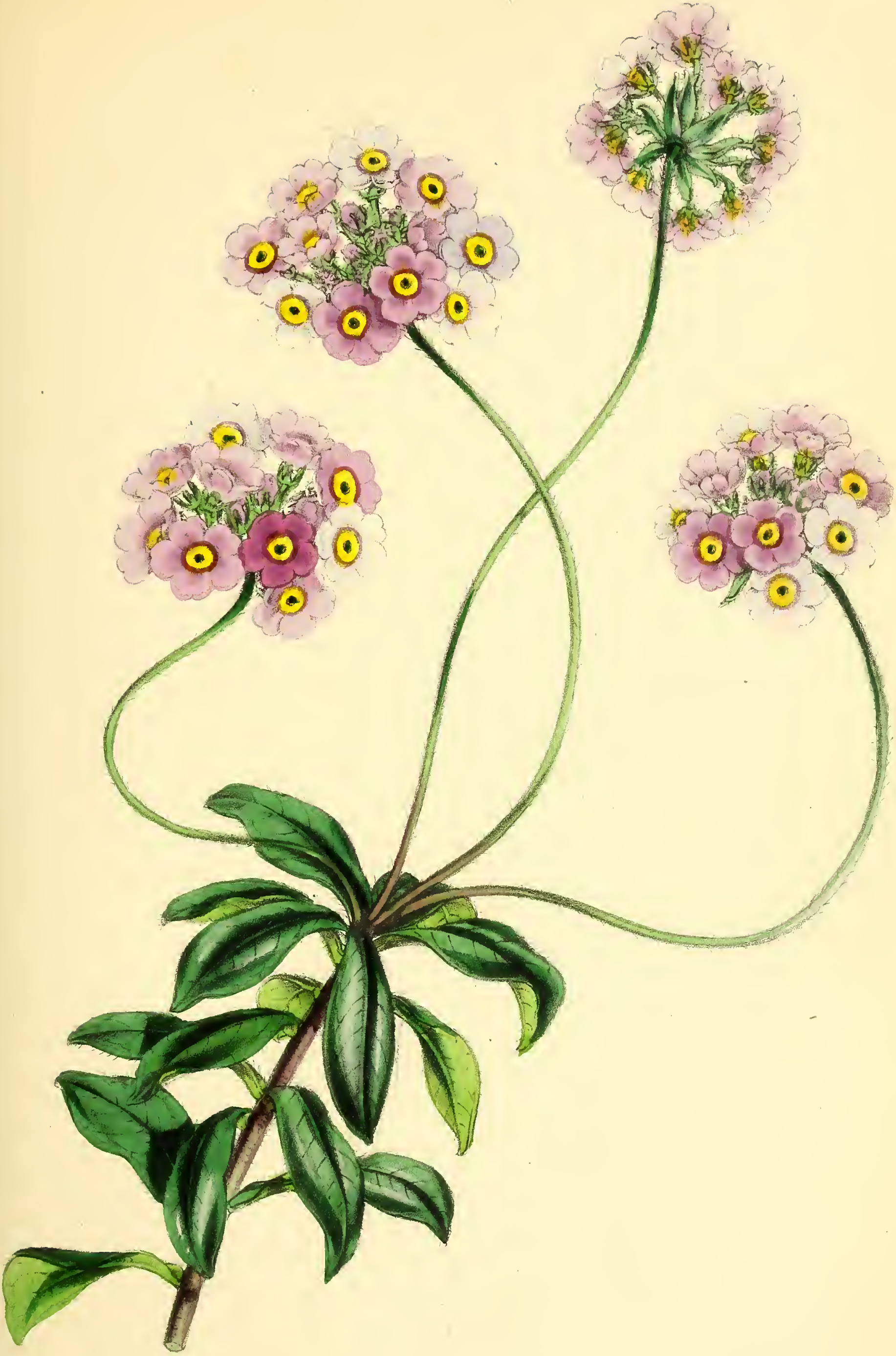
Generic Character.—*Calyx* five-cleft, or five-toothed, inferior. *Corolla* monopetalous, hypogynous, funnel-shaped, or salver-shaped, five-cleft, contracted at the orifice. *Stamens* five, inserted in the tube of the corolla, and opposite the segments; *filaments* short; anthers ovate, two-celled, opening longitudinally. *Ovarium* one-celled; *ovules* five or indefinite, peltate. *Style* filiform. *Stigma* obtuse or rather globose. *Capsule* one-celled, opening with five longitudinal valves. Seeds five or indefinite, peltate; *placenta* central; *embryo* in a fleshy albumen, and lying across the hilum.

Specific Character.—The whole plant covered with long wooly hairs. *Flowers* many, in a terminal umbel. Tube of *calyx* ventricose; *corolla* rosy pink, with a yellow eye.

Artificial rockeries, as they are too frequently met with, are very uninteresting objects in pleasure grounds, and, in many instances, would be well nigh insufferable, did they not furnish appropriate sites for a most interesting class of plants. Clothed with a race of Alpines, the deformities of almost any rockery are hidden by a truly delightful mantle. The plant here figured is one of this race. It is found plentifully on the Himalaya Mountains, and, we learn from the "Botanical Magazine," that seeds of it were introduced from that station a few years back; from which stock of plants, in all probability, those now in our collections have originated. The species is hardy, and propagates by cuttings or seeds. Autumn is its season of flowering; it blossoms abundantly, and, with a little care, can be rendered more interesting than it is naturally. It should often be renewed from seeds, and repeatedly raised from cuttings; young plants being far more vigorous than old ones.

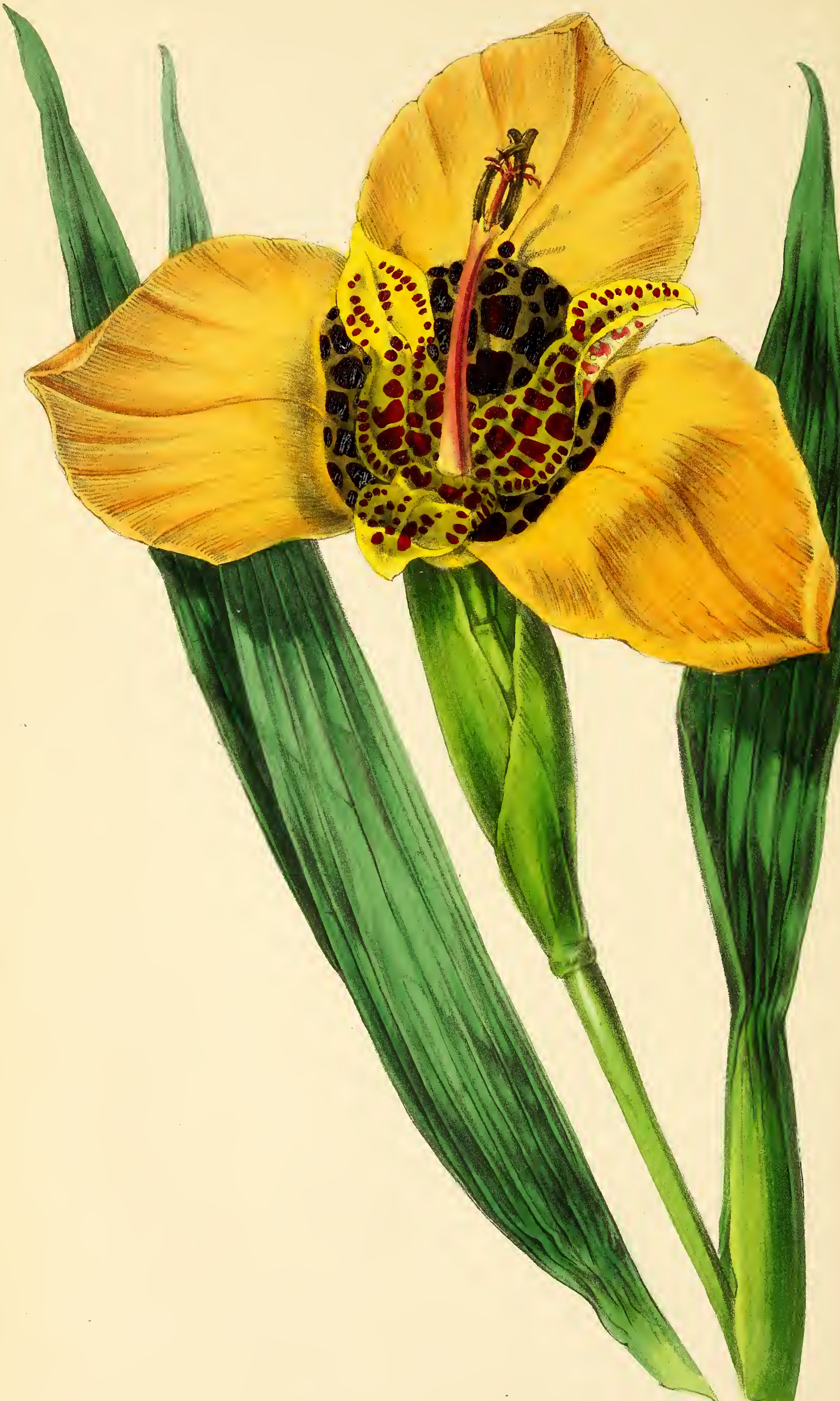
A plant flowering with Mr. Lowe, of Upper Clapton, in August, 1845, furnished the specimen represented in the accompanying plate.

Androsace is derived from the Greek words, *aner*, man, and *sakos*, buckler; the leaves of some of the species bearing some resemblance to an ancient buckler.



G. Holden. del. & Lith

Androsace lanuginosa.



S. Holden, del & Lith.

Tigridia conchiflora var. Watkinsoni.

TRIGRÍDIA CONCHIFLÒRA WATKINSÒNI.

(Watkinson's Shell Tiger-flower.)

Class.
MONADELPHIA.

Order.
TRIANDRIA.

Natural Order.
IRIDÀCEÆ.

Generic Character.—*Perianth* six-leaved, petal-id, three *outer* ones large, ovate, hollow at the base ıd sessile; three *inner* ones smaller, clawed, con-acted in the middle. *Stamens* three; *filaments* ıited into a long tube. *Stigmas* three, bipartite. ıpsule oblong and angular.

Specific Character.—*Stem* angular. *Leaves* ensiform, nerved. *Perianth*, three *outer* pieces oblong-ovate, acute; three inner above the medium size, ovate, acute.

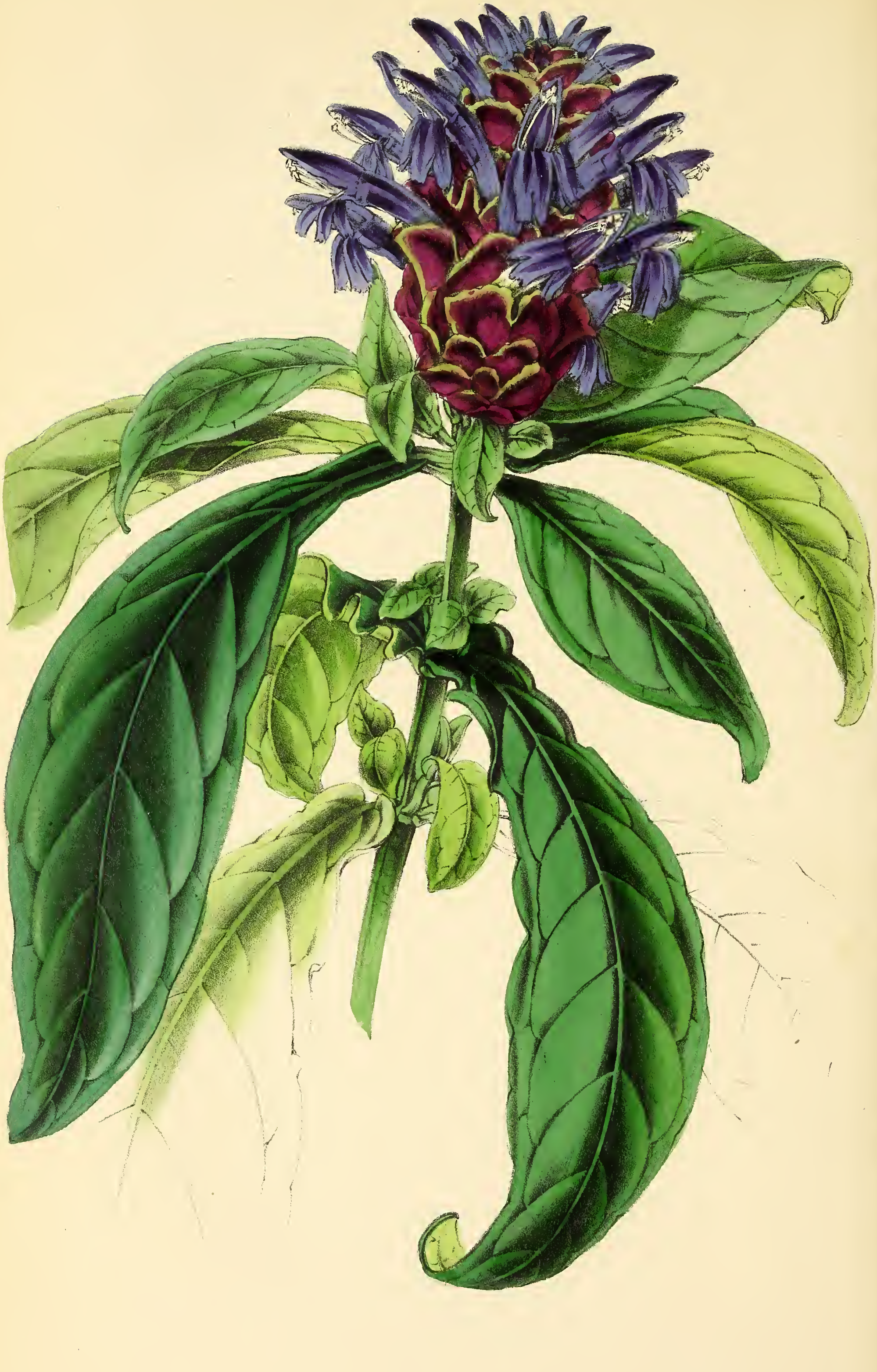
Watkinsoni, a hybrid, habit of plant like T. pavonia. *Flowers*, three outer pieces orange-yellow, three inner pieces, deeply spotted with red and brown, sagittate.

The Tigridias are now usually found in company with plants of an inferior or econd-rate description; they are, therefore, commonly grown in situations where their ıowy flowers are seldom seen to advantage. This is to be regretted; for although ery fugitive in their duration, they yet deserve far more attention than is usually estowed upon them.

T. conchiflora Watkinsoni was raised by Mr. J. Horsefield of Whitfield, near Ianchester, from seeds of the *conchiflora* fertilised by the pollen of *pavonia*. The ıllowing is Mr. Horsefield's own account of it:—"About ten or twelve years ago cut out the anthers of a flower of *T. conchiflora*, as soon as it opened in the ıorning; towards noon of the same day, I took the burst anthers of a flower of *pavonia*, and dusted the stigmas of the former flower. The seed-vessel ripened, ıd a few seeds came to perfection; three of these produced plants whose flowers ımbine the properties of the two species. In habit and strength *this* hybrid esembles *T. pavonia*, the male parent; but in colour and the markings of the ower, it resembles *T. conchiflora*, the female parent; the large outer sepals, owever, are of a very deep yellow, inclining to orange, and sometimes elegantly reaked with red lines; whilst the spotted centre equals, if not surpasses, the rilliancy of either of the species. One of its greatest merits is being so free a loomer, and as easy to cultivate and increase as *T. pavonia*, whereas *T. conchiflora* rather delicate, increases slowly, and is easily lost. I have grown the two together r some years, and whilst I can scarcely keep up a stock of *T. conchiflora*, the ybrid increases abundantly."

That *T. conchiflora* is more delicate than *T. pavonia* every person acquainted with these plants must admit; but provided the soil be light, and the drainage good, it will in most situations thrive and flower very freely in the open borders; as will also this new hybrid. We are indebted to Mr. Thomas Watkinson of Longford Nursery, Stretford, near Manchester, for the drawing, and in compliment to him we have named it.

The generic name is derived from *tigris* a tiger, and *eidos* like, in reference to the marking of the flowers.



S. Holden, del & Lith.

Porphyrocome lanceolata

PORPHYRACÒMA LANCEOLÀTA.

(Lance-leaved Porphyracoma.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
ACANTHÀCEÆ.

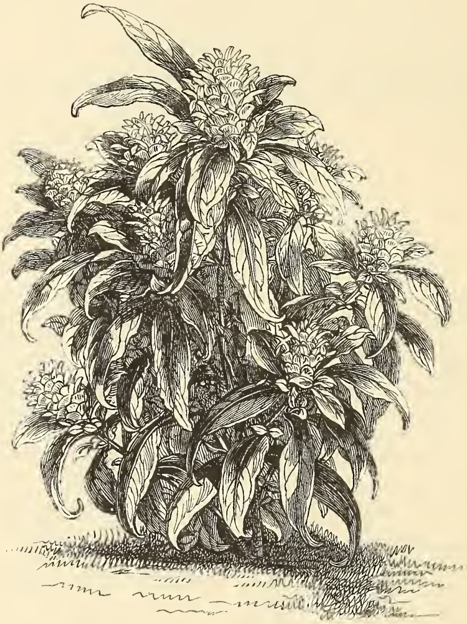
Generic Character. — Inflorescence in terminal ikes; flowers opposite to each other, with coloured afy bracts irregularly torn; the two outer large, and e inner one small. *Calyx* diminished, five-parted, bricated and unequally torn, persistent, free. *rolla* monopetalous, hypogynous, tubulose, two-pped; *lips* unequal, upper one narrower, bifid, lower e large, trifid, reflexed. *Stamens* two, both anther-s, exserted from the tube of the corolla, shorter than the lips. *Ovary* ovate, seated in a disk, two-celled. *Style* one, longer than the corolla. *Stigma* obtuse. *Capsule* oblong, two-celled. *Seeds* two in each cell, round, without albumen, wingless.

Specific Character.—Perennial. *Leaves* opposite, lanceolate, slender at the base, nearly sessile, entire. *Spike* both terminal and axillary, aggregate. *Bracts*, two outside ones large, very much and deeply lacerated, of a vivid purple. Flowers purple-blue.

For a figure of this very beautiful plant, we are indebted to Mr. Glendinning of e Chiswick Nursery, in whose stove it flowered in April, 1846, when our drawing as made. It is of very easy culture, and of similar habits to many other stove canthaceæ, requiring light sandy soil, plenty of pot-room, and good drainage. In e season of growth, give abundance of heat and moisture, but whilst in a state repose, keep rather dry than otherwise.

It is a plant of rare beauty, and deserves every attention that can be given it; nd its general habit and form of growth, the accompanying wood-cut very efficiently isplays. It is to be regretted that we are unacquainted with its native country. ost of what is known about it, was published in the "Botanical Magazine" a short me ago, by Sir W. Hooker, whose words we quote. "For the possession of this arming plant, we are indebted to Mr. Forkel, gardener to His Majesty the King the Belgians, at Brussels, who sent it to us under the above name, but unfortuately without any history, so as to leave us in the dark as to its native country, or e author of its very appropriate name, given in allusion to the singularly richly-loured spikes of deep purple, from within the scales of which the scarcely less brightly-coloured flowers appear. It is a stove plant, continuing to flower during the spring and summer months. It may be referred to the tribe Echmatacanthi, and the subtribe Justiceæ."—*Bot. Mag.*

The generic name is derived from *porphyra* purple, *koma* head of hair.



THE FOLIAGE—AND ITS FUNCTIONS.

The phenomena which are referable to the leaves of all plants, whether perennial—including trees, shrubs, and herbaceous subjects—or annuals, whose course terminates with the first production of seeds, include some of the most profound mysteries of philosophy.

Yet of late years, we might conclude from the style in which these mysteries are treated, that the secrets of Nature had been laid open, that the functions of the leaves had been actually determined; and, henceforth, that a lecturer or writer had nothing to do but to expound, in set and orderly terms, the results of a few experiments which have been deemed conclusive.

The modesty of doubt may yet, however, be tolerated; and therefore, as it is the objects of these articles to excite inquiry, we shall not hesitate to present to notice the leading facts which constitute the basis of modern theory, and thus enable the reflecting to draw their own inferences.

Dogmatism we entirely disclaim, therefore it becomes a duty to appeal to the highest authority on all points of consequence. There are persons who have at command every refinement of microscopic machinery, and who add to this great privilege an adroitness of manifestation which is almost miraculous. The following description of the structure of a leaf, though general, and, of course, subject to exceptions, must have been derived from some such power of minute inspection.

"A leaf is an expansion of the bark, from whose axil a leaf-bud is developed. It is usually thin, and traversed with one or more veins, composed of woody and vascular tissue; sometimes it is fleshy, cylindrical, or nearly so. Its veins form a double stratum, of which the upper is in connexion with the alburnum, and the lower with the liber of the branch on which it grows. When leaves have been macerated long enough it is easy to separate the two strata. The veins are held together by a green or coloured *parenchyma*, which is inclosed in an epidermis, pierced by stomates or openings, supposed to be for the purpose of respiration."

A leaf is frequently found in autumn lying on or among vegetable matter, which has so communicated decay, (*Eremacausis* of Liebig,) to its *parenchyma* as to lay bare the veins, and expose their every ramification; if, according to the foregoing authority, the upper stratum is connected with the alburnum or new sap-wood of the plants, then we may safely conclude that its tissue is woody, and consists mainly of *lignin*—the base of woody fibre. By parity of reasoning, the lower stratum must be similar to the liber or yearling bark, which though ligneous is more spongy than the true wood. The positions and insertions of these supporting skeletons or bones of the leaf, seem to point to the fact that they are not tubes of conduction, though it cannot be doubted that they are so far pervious as to admit a supply of fluid for their own nutriment and growth.

The *parenchyma*, with it *chlorophyl*, (green-yellow colouring matter—a term no quite arbitrary.) is evidently vascular, admitting the interflow of every fluid or ga that is to be subjected to the laborating energy of the foliage. The pores or stomates however placed, whether on the underside only, or on both sides of the leaf-plate seem by their position to prove the existence of a respiratory power. That pore exist no person can doubt who possesses a microscope and is able to detach a transparent scale of the outer integument of a leaf. To dissect the tissue, to detach it external membrane, and completely to disclose the position and orifices of the pores demands the skill and apparatus of the practised anatomist; but any ingenious perso can satisfy himself of the general fact alluded to, though it should appear that ou utmost powers of observation, aided by legitimate analogy, has not been quite abl to determine without question or doubt whether the organism of the foliage, with it transpiratory system of pores opening to the air, is devoted to the office of expiration inspiration, or of both, connectedly or reciprocally. Of the first-named function we are practically assured; for who could doubt, after witnessing the drops of water which accumulate upon any broad leaf, lying underneath and in juxta-position with the lower surface of a vine leaf, produced in a glazed erection, during the full sunshine, at and about the hour of noon? We mention this leaf, because it is so open to general notice; nevertheless the position of the stomates warrants the transpiratory office of almost every variety of leaves. But the phenomenon of the exudation o aqueous matter does by no means imply that water alone is exuded; gases may, and do pass through, the pores; and these are exceedingly varied in their chemical components. But of this more hereafter. The inquiry which immediately presents itself is this—Do leaves *in*-hale? do they absorb carbonic acid and ammonia from the atmosphere? is there any undoubted fact which can prove to demonstration that they possess this attractive power? Without daring to assert the contrary—on the other hand, being inclined by comparative analogy to subscribe to the received hypothesis, we are constrained to question the validity of the evidences upon which it is founded; and now hasten to refer to some statements that have very lately been made in a public lecture, wherein we read, that—

"If an acorn be put into the ground it will germinate, and progressively increase till it become 'a large oak containing thousands of pounds of charcoal.' This is a somewhat bold and delusive assertion, in so far, that the tree does not contain one grain of charcoal, properly so called—since it is evident to the most unreflecting, that charcoal is a product of the slow combustion or distillation of wood; it is the *coke* of wood. *Ligneous matter* is abundant in a tree—a natural compound of oxygen, hydrogen, and carbon, or in other words, of three great elements, that can be developed under those forms, The mind is grievously mystified by these hazardous assertions; which may be met by the simple fact, that *natural productions* rarely contain any of those substances which are developed in our laboratories. For instance, alcohol is a product of sugar, readily obtained, and merely by a change among the three elements; but there is not a particle of real alcohol in sugar, or ı the saccharine juice of its cane, nor yet in its nearer relative, the *fluid sugar* of ıe grape.

"Observing these cautions, we proceed thus :—the tree, it is said, could not have btained this charcoal from the ground, because the ground around the tree becomes cher in carbon during its growth ; the oak, therefore, has *derived its carbon from ıe air.* While, therefore, the sun shines on the leaves, they have the power of bsorbing the charcoal from the carbonic acid of the air ; and that plants *have* this ower is a well known fact, attested by experiments, which have been tried over and ver again."

There it is, at this very point, that we solicit the earnest attention of our readers. oussingault, we are told, put a branch of a vine into a glass tube while the plant as growing, and through this tube was sent a current of air containing a certain er centage of carbonic acid. This gas is easily detected by the white sediment hich it produces in lime water. When the gas was passed through the tube, while ıe sun shone brightly on the branch of the vine inclosed, not a particle issued ıerefrom ; or in any degree affected the lime water contained in the vessel with hich the tube was connected. A number of experiments, similar in character, have een performed in Britain, and on the Continent, all tending to prove that carbon absorbed, during sunshine, from carbonic acid, by the leaves, wherein the ırbon, or elemental base of woody matter is retained, while the oxygen is liberated, ıd passes in a free state through the air and water which had held the carbonic cid in solution. But Nature does not act in this way; carbonic acid *does* exist in the tmosphere ; but trees and their branches are free and open to the air, the sun, the ew, and other meteorological agents ; they are not confined in tubes, under bell-lasses ; some containing water, medicated fluid, or in contact with gases, either in uality or quantity disproportionate to their natural habits, and always exposed to ınbeams refracted through one or more glasses. Experiments so conducted, appear be inconclusive ; for, is it probable that natural results can be attainable by means agents unnaturally applied ?

That carbonic and ammoniacal gases do exist in the air may be safely asserted ; r, how else could the exhalations from decomposing animal and vegetable matters e disposed of ? By parity of reasoning, we may presume that plants act by ttraction as purifiers of the air. But as the ground performs so important an office ı all the processes of nutritious supply, and, as in the absence of terrene moisture, lants must sicken and perish, we are constrained by the paramount evidence of ıcts, to refer to the earth as the grand medium of supply, and still to regard with ealousy any theory based upon ambiguous experiments.

There does not exist a truly practical cultivator of the garden or field who is not ertain that if his plants are dry at root they must either droop or perish in the lazed houses ; this truth is above all things manifested, and by the simple fact—ıough others are not wanting—that, however you may flow the ground, and in ldition, so saturate the air with steam, that the glass and rafters shall flood with condensed water, the dry plant will continue to flag, till its soil receive and *imbib* to its centre that quantity of water which its specific temperament requires.

Herein also, the real skill and discrimination of the gardener are brought to th test; for, as plants differ much in their requirings, a great degree of knowledge an judgment are called for, otherwise, one subject may be swamped, while another i scarcely kept alive.

One more quotation, and then, having adduced evidences of the possible fallac of modern theorists, we will, in fairness, give them every advantage which our ow observation enables us to bring forward.

In proof, as it is supposed, that carbon is derived from the atmosphere, we read that, "It is now pretty certain that plants generally derive their carbon from th air. A forest in Scotland, which was planted fifty years since, now contains mor charcoal than it did at the commencement of the period."—(Have not all the leave fallen yearly, and by decay produced a blackened earth?)—"Nitrogen, in the for of ammonia, is also derived from the air to a great extent, being brought down b means of rain. It (ammonia) has been detected in rain-water, when sought for, an likewise in snow, and is thus known to exist in the air. Whether all plants deriv all the nitrogen they want from the ammonia of the air, is another question; it i not a well settled point, and we want agricultural experiments to decide it."

This closing and modest addition, is conclusive:—an hypothesis exists—it is o recent date—proofs are wanting; therefore the whole rests upon a conjectural basis The lecturer, as we have seen, asserts that ammonia exists in the air; and that rai and snow conduct it to the earth. Direct experiment has, really, *proved this fact* but, what then? Admit that every shower shall so convey a portion of that ammonia which had been received into the atmospheric volume, during the decomposition o animal matter, and the exhalation of ammoniacal gas from heaps of manure, and th like fermenting substances; yet, if it fall to the ground, and soak into the soil wit the rain or snow, which had been its solvents, does the theory of absorption by th leaves receive any support from the admission? On the contrary, the groun becoming the recipient, we should rather be inclined to think that the fluid ammonia so situated, must enter the organism through the channels of the *roots*.

Thus far, doubt has been maintained, on the ground of what appears to b *fallacious experiments*, conducted upon *artificial principles*. But, if we recur to pur nature, free from the *experimentum crusis* of the laboratory, and its death-dealin gases, facts may be appealed to, that, to say the least of them, will confer probabilit upon the modern theory. First, then, there are numbers of plants, *wild* weeds o the field, uninterfered with by man; and others, *cultivated* as food or fruit, whic produce a system of foliage, so vast, so infinitely extended, when compared with th stems, that it is scarcely possible to refer to any other channels of nutriment tha those of the leaf-pores or stomates. Take, as one example, the common Chickweed and compare its *hair-like*, slender stem with the numerous thicker branch-stalk and their thousands of appendant leaves. As another example, look at the Cucumber s numerous leaders from the main stem becoming larger at every joint, till, at ngth, the footstalks, alone, of the most distant leaves, are, individually, much icker than is the main stem near the surface of the earth.

Second, it is observed, that in many cases of the higher order of horticulture, that the mes of fermenting stable manure, placed in pits, or raised in mass within a glazed rection, confers a full and healthy verdure on the leaves, which cannot be obtained y steam, either from tanks or sprinklings; witness the Pine, and Vine, in stoves or its; the Gardenias, Gloxinias *cum multis aliis*, in floriculture. The very fact that mmoniacal hydro-carbons so produced may be deleterious in the case of Melons, nd the like, supports the theory; because it proves that, as the said gases do not rm within the ground, but find their way into the atmosphere of the pit or frame, he fatal effect must be the result of direct chemical action upon the foliage.

Here we close: truth is our object; but, even, while we hope and believe that beautiful doctrine may be true, we desire to see it based on and confirmed by nobjectionable experiments.

N THE CULTURE OF THE CHINESE AND INDIAN AZALEA.

If we were requested to name any single genus of plants which we considered he best adapted for producing a grand and varied display of flowers in the conseratory, during a period of eight or ten months in the year, and which, at the same ime, were not of difficult cultivation, we should unhesitatingly name that which eads this article; for, with only ordinary management, some of the numerous varieties may be had in bloom from Christmas until the end of May; while, by a proper course of forcing at one season and retarding at another, a very splendid display may be obtained from the end of October until the following July.

The original species of the Chinese or Indian Azalea were introduced to our gardens nearly forty years ago; *A. indica* being sent from China, in 1808, under the name of *Rhododendron perdicum*, while a ledifolia, now commonly called *A. indica alba*, followed in 1819, and *A. sinénse*, of the splendid yellow species of which there are several varieties now in cultivation, was first seen in 1824. From these species some very beautiful hybrids or garden varieties were raised by various cultivators; but it was not until the introduction of *A. indica variegata*, in 1832, *latentia*, in 1833, and *Gladstanesa*, in 1835, that any very decided direction was given to the labours of the hybridiser or cross-breeder of these truly magnificent plants. From that time the progress of improvement in form, size, and substance of flower, as well as in habit of plant, has been steadily on the increase, while the few beautifully formed and marked varieties which are now annually unfolding their charms to the various raisers, promise in a short time to drive the majority of our old favourites entirely out of cultivation.

But to our task:—The Azaleas may be propagated in various ways: by seeds, t raise new varieties, and by cuttings, layers, grafting, and inarching, to perpetuat certain species or varieties. In propagating by cuttings, the slips may be taken o at any time before the plant has matured its growth; but if the cuttings are take just at the time when the young shoot is assuming a brown colour and the wood i about three parts ripe, the chances of success are much increased; indeed, wit ordinary management, rendered certain. In selecting the cuttings make choice o those of medium growth, and cut them about an inch-and-a.half long; prepare pot in the usual way, with plenty of drainage, and a layer of peat and some sand; inser the cuttings, and then cover with a bell-glass. If the cuttings, at the time they ar put in, are in a growing state, they may be placed at once in a gentle, moist heat but if the wood is nearly ripe, it will be advisable to place the pot in a comparatively low temperature until the cuttings are callosed over.

Under favourable circumstances Azaleas will generally strike in from six week to three months, and may then be potted off into small pots, keeping them for a time afterwards in a moist growing temperature.

Propagation by layers is but little practised, and, in fact, is a method requiring little or no skill, as, if a branch is merely bent down, covered with soil, or even enveloped in a little moss and kept warm and moist, it will produce root and a perfect plant, without further care. Although Azaleas may be propagated with great freedom and rapidity both by cuttings and layers; neither of these are practices much to be recommended, save and except to procure large quantities of the free-growing kinds to work, graft, or inarch the choicer varieties upon; and for this purpose the strongest-growing kinds are chosen, such, for illustration, as *A. indica phœnicea*, *Woodsii*, *Herbertii*, and Double Red; in fact, any of those varieties which make strong shoots, and which, as a natural consequence, make strong roots.

These then are the parents upon which the more tender and choice kinds are grafted or inarched, and the reason for grafting them is, that such varieties as *A. indica variegata*, *lateritia*, *Gladstanesi*, and their varieties, are too tender to stand or grow upon their own roots for any lengthened period; for although there are some few examples of plants growing for a number of years on their own roots, as for instance the plant of *A. variegata* annually shown at the Chiswick Exhibitions, by Mr. Falconer of Cheam in Surrey, yet this may be considered the exception rather than the rule, as, where one plant stands for seven years upon its own bottom, we may very safely assert that fifty die. And hence, grafting or inarching is our only safeguard and dependence.

Now, grafting and inarching may be considered analogous to striking by cuttings and layers, inasmuch as the graft is made to strike root upon the wood of a previously rooted plant in place of the soil, while the inarched branch strikes root on precisely the same principle, only that it is not severed from the parent plant until adhesion has taken place between it and the plant upon which the duties of the foster-parent have now devolved. Inarching may be performed any me during the growing season, and consists in merely cutting the branches of two lants so that they match, and then tying them neatly, but securely, together, and overing the wound with a little damp moss to exclude the air. Place the plant in shaded and rather moist place; syringe occasionally with tepid water, and in a few eeks the inarched branch may be severed from the parent stem. It is advisable, owever, not to reduce the foliage of the inarched plant too much at one time; but ather, after all the inarched branches are firmly established, remove a few twigs or ranches weekly, until every vestige of the old plant except the stem or stool has isappeared. In this manner a large plant of an inferior kind may be quickly lothed with a more modern variety, or a number of varieties of the same habit of rowth, but producing various coloured flowers, may be worked on one plant; and in his way a novel and really very interesting object may be produced.

The same desirable end above noticed, may be achieved by independent grafting; ut in that case more skill is required, inasmuch as the graft requires to be kept live until adhesion between it and the stock takes place, and hence the grafted lant must be kept in a close and moist atmosphere where evaporation from he leaves will be prevented. Grafting is the best performed either early in arch or towards the end of August. If performed in the spring, take the lants or stocks, as they are generally called, into a house at the temperature of from 0 to 55 degrees; and as soon as they show symptoms of the sap rising, they are in fit state to graft. Procure your grafts from plants in a dormant state, and, hewing ut a slice of the stock, take a corresponding slice of the graft; fit the latter and the tock neatly together, taking care that the inner bark of the two correspond, and tie hem neatly with some woollen thread or yarn. The plants must then be placed n a moderately moist heat in a house, pit, or frame of from 45° to 50° be overed with a hand-glass and shaded during bright sunshine. In a month or six eeks the grafts will be securely taken, and then the ligature must be loosened, erely keeping it tight enough to prevent the graft being rubbed off. When the rafts are firmly established, begin gradually to remove the head of the stock as efore directed. Grafting in the autumn is performed in precisely the same manner, nly at that time the wood of the graft should be about three parts ripe; and as the eason is warmer, of course the grafts may be kept considerably warmer. Beware, owever, of over-excitement, and recollect that great haste is not always great speed.

We will now suppose that the propagating processes have been successful, and hat you have on the first of April nice bushy plants, established in large sixty-sized ots. Now, presuming that these plants are well rooted, the next operation will be o shift or repot them. For this purpose procure some nice clean twenty-four or ixteen-sized pots, and drain them well with oyster shells and some lumps of harcoal, and then prepare the following compost:—four parts by measure of rich urfy peat, one part of perfectly decayed cow-dung three years old, one part of silver and, and one of charcoal; and if the peat is not very rich, a measure of half-ecomposed leaf-mould may be added without injury. Mix and blend all these equally together, taking care not to make them too fine, and pot the plants. Afte the plants are all shifted, remove them to a pit or vinery, where a moist temperatur of from 60° to 75° is kept, and water and syringe them freely. By the end August these pots will be stocked with roots, and therefore they must be shifte again, giving the strongest plants eight, and the weaker ones twelve-sized pots After this return them to the forcing-house; and as flower is not the object of th first season's growth, at least where specimens are required, persevere in you former method of treatment, and keep the plants growing until the middle November. During the season of growth due attention must be paid to the stoppin of luxuriant branches, so as to make them produce abundance of side shoots, an the branches must be so disposed as to form a uniform and compact plant.

We have got to the end of the first season; and as the enthusiastic cultivator, lik the rest of mankind, now only consents to travel at railway speed, we will, havin given the plants two months' rest, begin to start them again in January. At thi time they should be introduced into an early vinery, just set to work on a house i which a corresponding and gradual increase of temperature is to be observed; an if any of the shoots have set flower buds, rub them all off, leaving one or two t prove the kind. During this season you must also persevere in the same metho of treatment, stopping the straggling shoots when necessary, and encouraging diffus and compact growth as much as possible. Do not however stop any of the shoot after the middle of August, but from that time endeavour to bring the plants int moderate growth so as to ripen the wood, and set the bloom. Those plants whic are intended for early blooming, must be kept in heat until the flower-buds are considerable size—until in fact on breaking the bud the faint colour of the flower ca be discovered. By very gentle forcing these will bloom in the depth of winte but when intended for late blooming the plants must be removed from the forcin house so soon as the flower-buds are perceived, kept in a cool dry pit, merel excluding the frost throughout the winter and spring, and they will bloom in Jun and July.

Thus we have traced the cutting or graft from its infancy into a large bloomin specimen plant, which with ordinary treatment will continue to delight you with it bloom for a number of years. The treatment in future will be simply to give the a season of growth in heat after they have done blooming, and until their bloom fo the following season is set, potting them wherever it is considered necessary, an supplying them liberally during the growing season with liquid manure.

The only insects which Azaleas are subject to are thrips and green-fly, both which may be destroyed by frequent but slight fumigations of tobacco. They als suffer occasionally from attacks of mildew, which is best removed or checked by liberal dusting of sulphur directly it is perceived.

Subjoined is a list of thirty of the best and most distinct Azaleas which hav come under our notice, and which have the further advantage of not being ver expensive.

Azalea
Indica variegata
— lateritia
— do. formosa
— Gladstanesi
— do. formosa
— exquisita
— alba-striata
— Murrayana
— Broughtonii (Knight)
— do. (Smith)
— refulgens
— optima
— carminata
— coronata
— Reddingii

Azalea
Indica Minerva
— decora
— prestantissima
— aurantia magnifica
— double red
— semi-duplex violacea
— do. purpurea
— speciosissima
— Fielderii
— Penyana
— splendens
— magnifica
— ledifolium
— Smithii coccinea
— sinensis

ON THE CULTURE OF LEUCADENDRON ARGENTEA.

In how few collections of greenhouse plants this splendid growing old species is found! It has always been considered difficult to keep, and more so to propagate it; hence its scarcity: although perhaps it is not easy to conceive a more admirable object than is a large specimen of this plant.

It requires for a soil, two parts good heath-mould, and one part light sandy loam, not broken fine, but merely chopped together.

In potting, drain well with broken potsherds and charcoal; also mix pieces of charcoal and freestone about an inch square through the soil. These will retain moisture, and prevent the roots suffering immediately from drought, which they are very liable to do; they also answer other important purposes. Do not cramp the roots, as by such treatment they are sure to suffer.

Over-watering and drought are two extremes which must always be avoided; the plants cannot endure either. The roots being tender, water must be administered at all times with care, but especially in winter; drought, however, is more injurious than over-watering. The leaves being so thickly clothed with silky hairs, syringing is usually fatal to the foliage, and sometimes to the branches, it is best to entirely dispense with that operation.

Its situation in the greenhouse should always be cool and dry; heat, or an atmosphere loaded with moisture is always injurious. If placed out of doors during the summer season, they either suffer at their roots by drought from exposure to too much sun and air, or they perish from over-moisture by rain, or the roots are lacerated by the entrance of worms into the pots; or lastly, the tender foliage is scorched or bleached by the various changes in the atmosphere. Always, therefore, keep these plants in the greenhouse.

The best method of propagation is by seeds, which should be sown in March or April, and covered thinly with fine soil; set the pots in a cool, dry part of the greenhouse, where they will be shaded both from sun and wind; cover each pot with a piece of slate or glass, to prevent the soil drying too much, and by the following autumn they will be ready to plant singly into small pots. After having done so, place them under a hand-glass until they begin to grow, when they may be exposed gradually to the air of the house.

They may also be grown from cuttings; take off pieces of the ripened wood, and without in the least mutilating the leaves, plant them thinly and close to the edge of the pot in fine sharp sand. Place the pots on a dry, cool floor, and cover them with a hand-glass; water must be administered with the greatest care, and in about two months they will have formed roots. If the pots be plunged or placed in heat, success need not be expected. When struck, pot off in small pots, and again place them in a similar situation under a hand-glass, until they have begun to grow.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIOIDCALS FOR JANUARY AND FEBRUARY, &c.

Aconi'tum autumna'le. In growth it resembles *A. Napellus;* in the form of its flowers, *A. cammarum.* The flowers are lilac and white, produced in a simple spike; the smell of the blossoms is heavy and unpleasant. This species was found cultivated in the gardens of Ningpo, in the north of China, where it is chiefly prized on account of its flowering in winter. It is herbaceous, and will certainly prove quite hardy.—*Hort. Jour.*, vol. ii. p. 77.

Aza'lea squama'ta. "This fine addition to our Chinese *Azaleas* has been sent to the Horticultural Society by Mr. Fortune, who found it on the mountains of Hong Kong, as we learn from the Journal of the Society, in which is the following account of it:—'With the habit common to all the Chinese *Azaleas,* this presents the following peculiarities:—In its natural state it blooms without leaves, producing at the end of every little shoot a large solitary flower of a clear rose-colour, distinctly spotted with crimson on one side, and guarded at the base by a larger sheath of bright brown scales (whence its name). Its calyx, unlike that of the neighbouring species, is reduced to a mere five-toothed rim. Its ovary, immediately after the fall of the corolla, projects in the form of an oblong body quite covered with coarse brown hairs. The leaves, when young, are somewhat like those of *A. indica,* and have nothing distinctive in their shape or surface; but when old they are oval, sharp at each end, perfectly hairless, and as even on the upper surface as those of *Rhododendron punctatum.*" *A. squamata* is expected to prove hardy.—*Bot. Reg.*, 3.

Bego'nia fuchsioi'des. "A most lovely new *Begonia,* detected by Mr. Purdie on the Ocaña mountains of New Grenada, during his missions for the Royal Gardens of Kew. It is easily propagated by cuttings, grows rapidly, bears small but copious foliage, and is a plant to which he particularly requested our attention, on account of the copious, elegant, drooping red flowers, at first sight resembling those of a *Fuchsia;* and because it is much eaten to allay thirst, by the arrieros (mule-drivers) of the country. He also observes that the globular buds (meaning, probably, the buds of the fertile blossoms, which are globular) contain a fluid which, together with the acid of the flowers, prove highly grateful in the dry season, and where there are no rivers. It has bloomed during the autumn months with Mr. Veitch, of Exeter, and he has at this time (December 18th) one plant three feet high, loaded with the richly-coloured flowers. It has been three months in bloom, and has abundance of buds yet to expand. Our plants are now, at id-winter, beginning to flower. It is singular that as far as they have yet blossomed the plants ave proved only male-flowered, except the tall one of Mr. Veitch, which has one cluster of male flowers at the top, and of which two are represented."—*Bot. Mag.* 4281.

Be'rberis Fortu'ni. "This species is an evergreen shrub, with pretty pinnated and serrated eaves of a dark-green colour, and grows generally from two to four feet high, in the north of hina, where it flowers in the autumn months. It produces its flowers both from the points of the oung shoots and from the sides of the old stems; the spikes are short, generally six or seven ogether, and the colour of the flowers is yellow. It was found by Mr. Fortune, in a nursery arden near the city of Shanghae, and will probably prove hardy. It grows freely in common arden soil."—*Hort. Jour.* vol i., 231.

Cala'nthe curculigoi'des. "A bright-yellow *Calanthe* is an unexpected novelty, and this pecies, which was previously known only from bad dried specimens, proves to be one of the handomest of its race. The flowers have a firm waxy texture, and do not wither so soon as those of ome species; they are much yellower and finer than in *C. densiflora;* all their beauty fades, owever, in drying, when the species becomes one of the least attractive. The specimen now igured was the best we have seen in a living state, but it is nothing compared to what it will become. We have now before us wild specimens, collected by the late Mr. Griffith at Malacca, with ten inches of flowers, and a further part of the inflorescence is lost. It is not too much to say that the lowering spike of *C. curculigoides* may be expected to be a foot long. The species has been found exclusively in the Straits of Malacca, whence Messrs. Loddiges received it. It flowered at Hackney, in November, 1845, and may be expected to require more heat than some of the sorts." —*Bot. Reg.* 8.

Calosco'rdum nerinefo'lium. "This plant was sent to Spofforth by J. Trevor Alcock, Esq., who received it from Chusan when that island was occupied by our troops, and it has since flowered three seasons. Dr. Herbert distinguishes *Caloscordum* from *Allium, Pseudoscordum*, &c., 1, by the form and articulation of the tube, which includes the ovary; 2, by the filaments being inserted deeper, and not having a membranous dilatation; 3, by the withering style; and 4, by the recurved direction of the perianth." It is a small bulbous plant, having linear leaves, and bearing rose-coloured flowers.—*Bot. Reg.* 5.

Chiri'ta sine'nsis. A plant introduced from China in 1844, through the Horticultural Society, and of which Mr. Backhouse, Nurseryman, York, writes:—"The largest we had this season had a succession of upwards of twenty flower-stems, and some of the strongest of these had as many flowers opening in succession; the panicles being dichotomous and flowering in the axil of each fork. Some of the stems were nine inches high. The plant is easily propagated in moist sand in a warm humid atmosphere; any portion of a leaf will emit leaves and roots. The young plant will, however, be probably a year in flowering, and the progress of the scape is at first very slow. The plants succeed best in a moist stove near the glass, but require to be shaded when the sun is hot, otherwise their leaves are sometimes scorched. By having plants in different temperatures, the flowering may be kept up many months; but a common greenhouse scarcely brings them to perfection. We have not ripened seeds, the capsules having been removed to keep up the flowering."—*Bot. Mag.* 4284.

Cordyli'ne Ru'mphii. "A greenhouse plant of graceful habit, which has long been an inhabitant of a cool stove at Kew Gardens, where it bears its copious greenish-white flowers, succeeded by the orange berries, in July; but whence introduced is not recorded. The figure of Rumphius, above quoted, leaves no doubt of that being the same plant; it is consequently a native of Amboyna. Blume's description and reference to Rumphius make it equally certain that our plant is the *Sauseviera fruticosa* of that author, and consequently a native of the 'mountains of Java;' but equally certain is it that neither in habit nor in essential character can it be referred to *Sauseviera*. Its place is near *Dracæna* and *Cordyline*. If *D. Draco* be the type of the former genus, I should be unwilling to associate this with the true 'Dragon's blood;' with *Cordyline* it sufficiently accords in habit and in essential characters, save that the seeds are, in the state of the ovules, even always solitary in each cell, whereas they ought to be numerous, as shown in *Dracæna australis* (*Bot. Mag.*, tab. 2835), now referred to *Cordyline*. In all probability this plant will constitute a new genus, in which the inflated and rugose filaments of the stamens contribute to afford characters." Syn., *Terminalia angustifolia.*—*Bot. Mag.* 4279.

Croˋci. A collection of five very curious *Crocuses* is represented in the " Botanical Register for January, under the names of *Crocus Chrysanthus,* a small orange flower with a dark-colour limb to its corolla ; *C. nivalis,* larger than the last, but also small, for the most part violet-coloure *C. Veluchensis,* pale and deep violet, with the sepals and petals of the flower of the former sha tipped with white, and those of the latter crimson ; *C. Salzmannianus,* with large pale viol flowers, whose sepal margins are shaded white ; *C. Byzantinus,* a very singular flower with viol sepals and white tipped with violet petals.—*Bot. Reg.* 4.

Cyanaˊnthus lobatus. " *C. lobatus* appears to be a native of the higher range of tl Himalayas. It was raised in the garden of the Horticultural Society, from seeds received fro Captain William Munro, in April, 1845, and said to have been ' collected in Chinese Tartary, c the Snowy Passes, at an elevation of 12,000 feet, in October, 1844.' It proves to be a delica hardy little herbaceous plant, with small fleshy roots, like those of some species of *Campanula* This plant is a member of a genus whose station in the Natural System is undetermined. It h small leaves alternately arranged on slender stems, which bear terminally a solitary flower, tl limb-segments of whose corolla are widely spread, for the most part bluish purple with a pale bl base and tube.—*Bot. Reg.* 6.

Daˊphne Fortuˋni. This charming deciduous shrub was introduced from China in 1844 l Mr. Fortune, who first discovered it in a nursery garden, near Shanghae, in the winter of 184 It was then leafless, but having taken it to the south, with other plants, for the purpose of fo warding them to England, the warmth forced this plant into bloom before it was sent off. Returnin through the northern provinces in the spring of the following year, he found it wild on many of tl hills in the province of Chekiang, forming a dwarf shrub, two or three feet high, losing its leaves autumn. In March and April the flower buds expand, and then the whole of the hill sides a tinged with its beautiful lilac-coloured blossoms, and have a very gay appearance. Before the fade, the Azaleas burst into bloom, and give those northern hills a description of beauty qui peculiar. The Chinese name is Wû-lan-ee. Like the Mezereon its bark is extremely acrid a poisonous, and is used by the natives to produce blisters on the skin, particularly in cases rheumatism. It is easily cultivated, growing freely in loamy well-drained soil, and strikes freel from cuttings. The main points in its cultivation are—a well-drained soil, full exposure to tl sun when forming and ripening its wood during the summer months, and rest during winter whe the leaves fall off. Attention to these matters will always secure a fine show of bloom in the earl part of the spring. It will probably prove quite hardy.—*Hort. Jour.*, vol. ii., 34.

Dielyˋtra Spectaˊbilis. This plant is beyond all comparison the handsomest of the natur order of Fumeworts. It was discovered in a state of cultivation in China by Mr. Fortune. grows eighteen inches high, and has three or four axillary racemes of beautiful flowers, eac raceme being from four to six inches long. The flowers are a full inch long, and nearly thr quarters of an inch wide, with the two saccate petals of a delicate rose colour, and the interveni narrow one white with a purple tip ; probably a hardy plant.—*Hort. Jour.*, vol. i., p. 233.

Dendroˋbium triadeˋnium. " In characterizing this species, a few weeks since," says D Lindley, " we spoke of it as a lovely plant, with the habit of *Dendrobium crumenatum,* but with very close racemose panicle of flowers, transparent, about as large as in *D. aduncum,* nearly whit with a tinge of rose, a violet spot on the end of the petals and lip, and a three-lobed yellow tuberc in the middle of the latter." An East Indian species, but from what locality is unknown. Notice at page 165 of last volume.—*Bot. Reg.* 1.

Erythriˋna Bidˊwillii. Of the plant bearing this name the Hon. and Very Rev. the Dean Manchester thus writes :—" This plant was sent to me at Spofforth, by Mr. Bidwell, fro Sydney. I am not sure whether it was raised by himself or Mr. Macleay. It is hybrid production, from *E. herbacea,* impregnated by *E. Crista galli,* and is remarkable as being, believe, the only certain hybrid papilionaceous plant we have. It is a very beautiful plant intermediate habit. Its vigorous shoots die down to the root after flowering, and have leaves an intermediate form approaching in colour and gloss rather to those of the Carolina *E. herbace* The flowers are of intermediate size and colour ; but like those of *E. Crista galli,* borne by thre at the axils of the leaves as well as on a terminal spike, while those of *E. herbacea* are borne on leafless spike proceeding from the root. I hope to multiply it by cuttings, and consider it to be great acquisition. The figure necessarily gives a very inadequate representation of an inflorescenc large for the plate ; and the terminal spike and upper part of the shoot had failed, from an cidental circumstance in the specimen sent."—*Bot. Reg.* 9.

Exogo'nium pu'rga.—"Although *Jalap* has been used in European medicine for nearly two nturies and a half, it is only within a few years that its botanical source has been correctly certained. The plant long cultivated as yielding the true jalap, in the stoves of Europe, and long the rest in the Botanic Gardens of Edinburgh, is the *Convolvulus jalapa* of Linnæus and ildenow, or *Ipomœa macrorhiza* of Michaux, a native of Vera Cruz. But, between the years 27 and 1830, it was proved by no fewer than three independent authorities, M. Ledanois, a ench druggist, resident at Orizator, in Mexico, Dr. Coxe, of Philadelphia, through information pplied by Mr. Fontanges, an American gentleman, who lived at Jalapa, and Schiede, the tanical traveller, from personal examination, that the drug of commerce is obtained, not from e hot plains around Vera Cruz, but from the cooler hill country near Jalapa, about 6000 feet ove the level of the sea, where it is exposed to frost in winter time ; and that the plant which elds it is an entirely new species. Schiede introduced the plant for the first time into England ; d it has been cultivated in various botanic gardens of Germany." A tuberous-rooted twiner, ith alternate cordate leaves, bearing flowers that are between funnel and salver-shaped, a purplish-d colour.—*Bot. Mag.* 4280.

Forsy'thia viridi'ssima. This is a deciduous shrub, with very dark-green leaves serrated at the argin, and grows eight or ten feet high, in the north of China. Early in spring the buds gradually nfold themselves, and present a profusion of bright-yellow blossoms, highly ornamental. It was und growing in the same garden at Chusan as *Weigela rosea.* It also grows wild on the ountains in the interior of the province of Chekiang, where it flowers equally as beautiful as hen cultivated. The plant is a free grower, and easily increased by cuttings and layers.—*Hort. our.* vol. i., p. 227.

Hibi'scus Moscheu'tos. "This noble plant, although one of the oldest inhabitants of our ardens, is seldom seen in cultivation. According to the learned authors of the Flora of North merica, it inhabits the borders of marshes, particularly near the salt water, in Canada, and hroughout the United States, flowering in the months of August and September. They describe thus : Stem, three to five feet high, minutely tomentose. Leaves about five inches long and hree wide, rather obtuse at the base, with a long acumination, often with three short abruptly-cuminate lobes, velvety-tomentose beneath. Peduncles axillary, two inches long, articulated a ittle below the flower, often coalescing with the petiole to a considerable distance above the base. lowers as large as in the common Hollyhock, rose colour, or sometimes nearly white, crimson at he centre. Petals obovate, retuse. Staminal column one-third the length of the petals ; styles xserted. Capsule as large as in *H. Syriacus.*" A hardy plant ; but one requiring greenhouse reatment for its successful management. Syn. *H. Palustris.*—*Bot. Reg.* 7.

'Iris seto'sa. "This very pretty plant is said, by Dr. Fischer, to inhabit the northern part of Eastern Siberia, along the Lena, about Schigansk and Jakutzk, in Kamtchatka, Unalaschka, Escholtz's Bay, Chammisso's Island, &c. Its root is said to be poisonous, but we know not on what authority. It is a very hardy herbaceous species, growing from one to two feet in height, if planted in any good rich garden soil, and freely supplied with water during the growing season ; but afterwards the plants should be kept rather dry, as they are very impatient of damp or wet during the winter months." Raised in the garden of the Horticultural Society, where it flowered last year in the month of May. Synonymes, *T. brachycuspis, cuspidata,* and *brevicuspis.*—*Bot. Reg.* 10.

Wei'gela Ro'sea. This beautiful plant was found by Mr. Fortune, growing in a mandarin's garden on the island of Chusan, in China, when it was literally loaded with its fine rose-coloured blossoms, which hung in graceful bunches from the axils of the leaves and the ends of the branches. This plant is peculiar to the north of China, being quite unknown in the southern provinces, and will therefore prove hardy or nearly so ; but if it should not, it will make a first-rate greenhouse plant. Mr. Fortune never met with it wild on the Chinese hills ; it is therefore possible that it may have been originally introduced to China from Japan. It forms a neat middle-sized bush, not unlike a Philadelphus in habit, deciduous in winter, and flowering in the months of April and May. It is of the easiest culture, growing freely in common garden soil, and is increased by cuttings put in during the spring and summer months.—*Hort. Jour.*, vol. i., p. 189.

PLANTS NEW OR INTERESTING, IN FLOWER IN THE PRINCIPAL SUBURBAN NURSERIES AND GARDENS.

Aˋrum spe. Messrs. Rollisson, of Tooting, have recently introduced a very strange anc formidable-looking plant from Java, the first sight of which in the case filled them with alarm the specimen, having a serpent-like form, curved over the other plants, and being of a ding green, mottled over with irregular spots of a lighter colour, made the resemblance to the constricto family still greater. It is quite round, eight inches in girth at the base, tapering to the end four feet long, and about six inches from the end it branches in two, where no doubt the flower are produced. The plant has tuberous roots, very much resembling the Jerusalem Artichoke.

Boroˋnia trifiˊlla. A handsomely-grown specimen is now profusely covered with its ric roseate flowers, in the nursery of Messrs. Henderson, Pineapple Place, Edgeware Road. It differ from *B. ledifolia* by curving its foliage upwards, and being less compact in habit. The flowers ar produced more abundantly, and of a deeper colour, while the tips of the petals are slightly curve backwards. It is a charming plant at all seasons, and very graceful in habit.

Burlingtoˋnia riˊgida. This charming species is now exhibiting its delicate rose-coloure flowers from three or four scapes, in the stove of Messrs. Rollisson's, Tooting. The plant (as i this specimen) has very distinct attractions ; the habit so peculiar, from the long thin rhizom growing erect and forming a bulb at the top, from which descend the thin graceful roots, while th flowers are so delicate in colour and fragrance that the plant attracts the admiration of all lovers o the floral race. The specimen is from five to six feet high, and growing most luxuriantly.

Cameˊllia Japoˊnica. During late years numerous hybrid Camellias have been introduced fro the continental nurseries, of anything but good properties, that it is quite a pleasure to see thi noble flower in a new and good form. At the nursery of Mr. Low, Clapton, are two seedlings o excellent qualities, one a pure white (*C. Jap. alba imbricata*), of large size, petals round and o good substance, well filled up and without the ochre colour so common in the centre petals of th old double white ; the whole flower lying quite flat upon the bud scales. The other seedling (*C Jap. miniata*) is a smaller flower, but in point of shape has been considered almost perfection ; i has a dazzling brilliancy of colour, bordering betwixt a deep pink and bright scarlet, and, see either in the bud, the half expanded, or the fully developed flower, cannot fail to attract th admirers of this splendid family. The habit of each seedling is good as regards the size an colour of the foliage.

Dendroˋbium spe. A new species of Dendrobium from the East Indies has lately flowered i the nursery of Messrs. Henderson, Pineapple Place, Edgeware Road, of a somewhat singula character when compared with species already in this country. The singularity consists in it having pseudo-bulbs very near one species (*D. densiflorum*), while the flowers and spike are lik another species (*D. fimbriatum*). The pseudo-bulb swells out, and is more angular than *D. densi florum;* while the flowers, though smaller, are considerably brighter in colour, and the labellum i fringed and in equal beauty to *D. fimbriatum.* The species will be a decided acquisition t this beautiful race.

Dendroˋbium heterocaˊrpum. This species has been exhibiting its flowers in Messrs Rollisson's stove, and is more remarkable for the richness of its fragrance than for its beauty o colour. The petals are a pale buff, while the labellum approaches almost an orange colour, wit brownish streaks down the centre ; the whole covered with down, giving a rich velvet appearanc to the flower. The flowers are produced on the leafless stems in various numbers, from one to thre at each axil, and remains a considerable time in flower.

Dipteracauˋthus scaˊndens. A new genus under this name has lately been introduced by Mr Glendinning, Chiswick. The plant is a climber of very handsome habit, having deep rich gree lanceolate leaves produced in pairs affixed to the stem opposite each other ; the stem round smooth, and a dark-green colour. The flower spike is about four inches long, branching, an having an abundance of buds, while it expands about six white Mimulus-like flowers on each spike The plant is a very liberal bloomer, sending its spikes of flowers both from the axils o the leaves and the ends of shoots in the greatest profusion, rendering the want of colour of mino consequence.

Franciˊscea hydrangæfoˊrmis. Since our figure of this plant was published, we have seen i nder much better auspices, but still not at all approaching its specific character of Hydrangea-ke. Under the care of Mr. Edwards, gardener to His Grace the Duke of Devonshire, Chiswick ouse, the plant has attained about two feet high, very compact, and producing at the top a rge ball of upwards of forty flowers, varying from a lilac to a pure white, resting upon the leaves, hich curve gracefully downwards. There were two or three heads of bloom besides, but of less ze. We can safely recommend the plant to the notice of those cultivators who have not yet ot possession of it, as being every way worthy their attention. We noticed good specimens rown compactly and flowering equally free at Messrs. Rollisson's, Tooting. The plant continues n flower for some weeks.

Habrotha′mnus e′legans. This plant is now showing its flower in the gardens of the Horti-ultural Society, at Chiswick, though not in very great abundance; yet sufficient is seen by the luster of deep, shining, crimson flowers among the long bright green foliage, to make the plant ne of considerable attraction. It was introduced by Mr. Hartweg, the Society's collector.

Habrotha′mnus fascicula′tus. The fine specimen in the Society's Gardens, at Chiswick, is gain exhibiting its profuse masses of bloom, of a brilliant scarlet colour, proving to the letter all that vas said in the description given when first illustrated in the "Horticultural Transactions." The lant has been well pruned, so as to make it a compact and handsome object, now that it is covered y its blossoms, and has decidedly a more attractive appearance than when seen last season with ts long lanky branches hanging about as if growing wild.

Spiræ′a prunifo′lia flore-pleno. This is another hardy plant, introduced by Mr. Fortune, rom China, bearing a profusion of white daisy-like flowers; along with it is *Spiræa pubescens*, introluced by the same collector, of equal beauty, hardy, with white flowers borne in clusters, somewhat ike the common May. Both are now flowering in excellent perfection in the gardens of the Hor-icultural Society, Chiswick.

Staunto′nia latifo′lia. A creeper, thought to be this plant, is flowering profusely in the gar-lens of the Horticultural Society, Chiswick, and though not a showy plant, still, from its delicious ragrance (being equal to the orange and its rival the *Chimonanthus*), will always give it an attraction worthy the cultivator's notice. We found it standing out in the open air in the nursery of Mr. Groom, Clapham Rise, during the last two or three years, though it has never flowered there. The plant under notice is flowering in the greenhouse, trained around a wire trellis. Its inflorescence is produced at the axils of the leaves on a short spike, with about six stems radiating, on which are borne small bell-shaped flowers of a dingy lilac and pale-green colour. The foliage seems to vary very much in number, some having three, some four, while others have five or six leaflets on the stalk.

OPERATIONS FOR APRIL.

The long and severe winter is now come to a close, and although occasional frosts may yet visit us, nothing to materially retard business, either in the open air or under glass, need, for this season, be feared.

In the *Stove*, those plants which flowered during the winter, as *Euphorbia jacquiniflora*, *Eranthemum pulchellum*, *Pentas carnea*, *Poinsettia pulcherrima*, *Geissomeria longiflora*, &c., and have been cut in and set in a cooler temperature, where they have enjoyed a partial rest, will now begin to form young shoots; re-pot such as require it, and by the end of the month, let them have the full benefit of both heat and moisture to facilitate their growth. A temperature of 80 degrees by day may be considered about a mean, with abundance of moisture in the air.

In the *Orchid* house gradually increase both heat and moisture, but admit air occasionally, when the weather will permit. Syringe, also, those species which are in full growth, plentifully. Look about well for insects, and set traps for them in every direction.—Those most prevalent at this time are the common Woodlouse, (*Oniscus asellus,*) one of the most destructive insects we have, and where very prevalent is not easily got rid of; it shuns light, particularly that of the sun, and commits its depredations during the night; when the shades of evening draw near, it cautiously creeps from its place of concealment, and commences feeding upon leaves, fruit, flowers, or whatever else falls in its way ; the young are at first pale-yellow, and soon become very active ; when half grown they become the same colour as the parents, and are remarkably voracious ; from their birth until full grown, they cast their skins several times : the common Slug (*Limax agrestis*) ; the white Slug (*Limax alba*) ; the Cock-roach, or, as it is sometimes called, Black Beetle (*Blatta orientalis*) ; the Thrips, (*Thrips adonidum*), a well-known and very common insect, measuring about the 20th part of an inch in length, and appearing on the leaves like small black lines ; both sexes have four straight, long, narrow wings, fringed, and slightly crossed when at rest, and they are rarely seen flying ; they pierce the under side of the leaves, and deposit a glutinous black fluid, which is both unsightly and injurious to the plant ; the larvæ and pupæ are greenish-white, and soon become as large as the perfect insects, and in those states do equally as much injury as when they assume the perfect form ; and, lastly, the *Aphides*, or plant-lice.

In the *Conservatory*, Climbers must be dressed and neatly tied up, and all plants attended to that are coming into flower, the borders and everything being kept in neat order for the spring growth.

The *Greenhouse*, also, now requires much attention ; air must be supplied freely. *Fuchsias*, which have been brought out of their winter quarters, and were placed in a warm part of the house, have now attained a growing state ; and those intended to make large specimens should be introduced into the Stove. *New Holland Plants* will now become very interesting. *Pelargoniums*, if any are cramped in very small pots, should be re-potted ; and others top-dressed with a light rich soil, to assist them in throwing up good trusses of flowers. *Cinerarias* will now be coming into bloom ; give every encouragement, by exposure to light and air, and a sufficiency of water ; and let *Calceolarias* have a similar attention paid to them. The Indian *Azaleas* will, for the most part, be out of flower ; let them be re-potted, and as soon as the young shoots have grown a sufficient length, select some of them for cuttings. *Camellias* now out of flower, should be introduced into an increased heat.

In the *open Flower Garden*, any *Evergreen Shrubs* yet remaining unplanted, should be got in without a moment's delay, especially if the land be light and sandy ; mulch with half-rotten dung for some distance round the roots, to prevent evaporation in case of a very dry spring. Sow any *Annuals* that yet remain unsown. This is, also, the best time to plant new beds of *Violets*. Prepare the beds in the Flower Garden for receiving the plants out of pots in May. Also, now clip and dress Box edgings, as much injury from frost need scarcely now be expected. *Auriculas* and *Polyanthuses* should have their flower-buds thinned, if it is desirable to have very fine flowers. Collect together all the different sorts of plants intended for the decoration of the Flower Garden in May, and when there are deficiencies, some may yet be struck, but this must be done immediately, or the young plants will be too weak for the purpose. *China Roses*, especially the smaller growing kinds, make a splendid appearance when planted in masses ; such as the *semperflorens*, *semperflorens atrorubens*, *semperflorens resplendens*, *Barclayana*, &c. When the subsoil is not naturally gravelly, there must be plenty of drainage laid beneath the bed. *Deciduous Roses* are now, too, beginning to unfold their leaves ; where it is desirable to prevent their flowering until late in the season, prune the shoots back to some of the later buds, at the end of the month. Few plants are so universally esteemed and cultivated as Roses, and scarcely any have more insect enemies. Although the damage done by some is trivial, others are such wholesale depredators that considerable attention ought to be paid to them. The FIRST OF THESE, are such as *suck* up the *juices* of *plants*, and thus retard their growth ; of these are two kinds of *Aphides*, or plant-lice, one called the *Aphis rosæ*, a brown species, and the other *A. rosa var.*, a pale-green one ; both are exceedingly detrimental, and if not checked will effectually prevent the plants blooming. The SECOND are *Saw-flies*, several of which, in their larvæ state, feed upon the leaves, others upon the buds, and others perforate the wood. The worst of these are—

Hylotoma pilicornis, which chiefly confines itself to the China Rose, the leaves of which it perforates through and through. This insect is double brooded, the first flies appearing in May ; these lay their eggs on the back of the leaves, and the caterpillars are full fed by the end of July, and spin themselves small brown cocoons amongst the leaves, tying two or three together with fine threads ; and the perfect insects appear in the middle of August. This brood lay their eggs by the end of the month, which are hatched in a few days, and the caterpillars go into the pupæ state in October, and become perfect flies the following May. The larvæ are small, white, and are very common on the under sides of the leaves.

Hylotoma rosæ.—This Saw-fly lays its eggs in the young buds, and is double brooded. The first brood of flies appear in the middle of April; the eggs are laid on the branches and at the base of the buds; when hatched the caterpillars eat and do much mischief before the young branches expand; as the shoots develop themselves the greater part of the buds are destroyed, and many of the leaves also. The caterpillars are brown with a black head, and when full grown are about half an inch long. They become pupæ in June, and the flies appear in August; the second brood of larvæ go into the pupæ state in October, and become flies the following April.

Emphytus fasciatus, or red-bodied Saw-fly.—This little creature sometimes causes the plants to droop and die, without any apparent cause. The females lay their eggs early in June, on the bark of the plants, which they perforate with their long ovipositors. These eggs hatch about the middle of the month, and the small grubs immediately begin to eat through the wood, until they reach the pith; they then proceed downwards, eating the pith, until they are full fed, which takes place early in September; they then leave their places of concealment, and form small brown cocoons, which become perfect flies the following May.

Emphytus nigricans.—This fly attacks the Rose trees much in the same manner as the last, and causes similar injuries; the species is smaller than *fasciatus,* and is without the red ring on the body.

Lyda hortulana.—The larvæ of this species not only live upon the leaves, but also cut large pieces out; and each makes itself a case by fastening the pieces round its body in a spiral form.

The THIRD, are Solitary Bees, which are much less injurious than the last; one sort merely disfigures by cutting off the leaves for the formation of their nests, and the other perforates the stem for the same purpose. The leaf-cutter is called *Megachile centuncularis,* or Upholsterer Bee; the females alone, which cut the leaves, form nests for their young. The other is *Megachile ligniseca,* or Carpenter Bee, somewhat smaller than the last, but with habits very similar.

The FOURTH kind, which may be mentioned, are Beetles, which attack every part of the plants, from the roots upwards. One of the handsomest and most destructive is *Cetonia aurata,* Rose-chafer, or Brass Beetle. In fine weather, during May and June, these beautiful insects may be found in abundance about the Rose bushes, either reposing in the hearts of the flowers, or flying round, and making a considerable humming noise. The females burrow into the light soft ground near the roots of the plants, and there deposit their eggs, from the middle to the end of June. The grubs when hatched are not unlike those of the common Cock-chafer, *Melolontha vulgaris,* either in size or colour, but may be distinguished by being thinly covered with hair, which those of the Cock-chafer are not. They immediately commence feeding on the roots of any plants in their vicinity, and as they continue in the larvæ state two years, it is surprising what an amount of damage is done by them. Their cocoons are composed of earth, pieces of rotten wood, leaves, and any other similar substance within reach, which they fasten together with a glutinous secretion. In the beetle state they chiefly confine themselves to the blossoms, very dexterously cutting out both petals and stamens, probably for the purpose of obtaining honey. The other is a much smaller species, called *Cetonia stictica,* or white-spotted Rose-chafer; both in colour and habits this resembles the last, but it is much less common, and therefore not so injurious.

The FIFTH kind are Moths, which of all depredators are most to be feared. Some devour the leaves, others the buds, and others the petals; whilst some of the more minute kinds merely disfigure by running little serpentine lines under the cuticle of each leaf; of this last are the—

Microsetia ruficapitella, or red-headed Pigmy Moth. The eggs of this little creature are laid on the under side of the leaves, in May and September; and the first brood of caterpillars are hatched in the beginning of June; they are then so small as to be scarcely visible to the naked eye. Each insect immediately eats into the parenchymatous substance of the leaf, every one forming a separate residence for itself, proceeding in a longitudinal direction, and carefully avoiding any injury to the outer skin of the leaf, which protects it safe from birds and the weather. About the middle of July they are full fed, being then about the sixth of an inch long, and of a dull yellow colour, with a brown head. When full grown they quit their residence in the leaves, and select amongst the spines secure places where they may undergo their transformations;

situations having been obtained, each forms a small flat white cocoon, which in a few days becomes exactly the colour of the branch ; and in August the perfect moths appear. This moth measures a quarter of an inch, when the wings are expanded, all four of which are dull white. The second brood are full fed and become pupæ at the end of October, and the moths appear on the following May.

Microsetia sericiella, or Satin Pigmy Moth, is another leaf miner ; in dry seasons these become very prevalent upon China Roses trained against walls ; their mines presenting the appearance o brown spots upon the leaves. The caterpillars scarcely exceed the eighth of an inch in length when full grown, are of a dirty brown colour, with a dark head, and go into the pupæ state in October, and the perfect moths appear the following June ; the colour of this little creature is blackish-brown with a silky gloss, and measures a quarter of an inch when the wings are expanded

Lozotænia rosana, or Rose Leaf Roller.—This is a small but very beautiful moth, measuring when the wings are expanded, about half an inch. The first pair have a yellow ground, and are closely netted with red, and crossed with three red bands; the lower wings are dull black, and the abdomen corresponds. The eggs are laid about the end of June, and the young caterpillars feed upon the leaves and buds until the end of August, when they form small brown shining cocoons on the under sides of the leaves, which they roll up, and tie fast with silken webs. The buds inhabited by these caterpillars are easily distinguished, as they are unable to expand, and a small perforation is discernible on the side.

Lozotænia lævigana, or smooth oblique Bar.—Perhaps no species does more injury to the buds than this ; in habits, colour, and size, it greatly resembles the *L. rosana.*

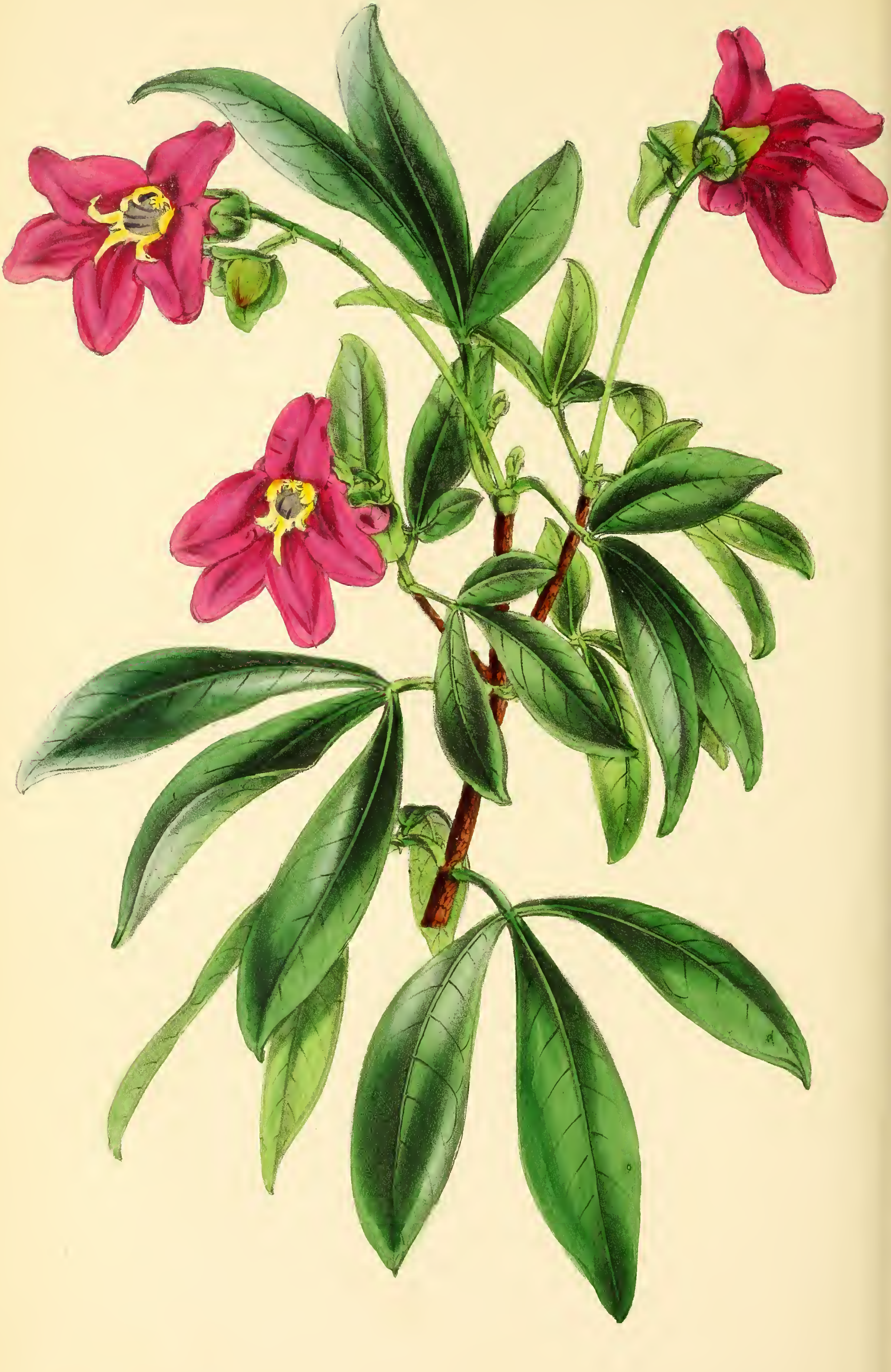
Lozotænia operana, or Great Hook Tip, appears at the same time as *L. rosana* ; it seldom attacks buds, but is a voracious leaf eater. The perfect moth measures, when the wings are expanded one inch. The first pair bright red, netted and clouded with rust colour ; and the second pair yellow orange shaded with brown.

Spilonota cynostabella, or Black-cloaked-Moth, is another species very injurious to buds : i also ties four or five leaves together and forms within them a thick silken web, where, when ful fed, it becomes a pupa, and the perfect insect appears in September ; the expansion of its wings is three-quarters of an inch. The first pair are black and white ; second pair, dull black.

Spilonota aquana, or Brown cloaked Moth, chiefly feeds upon the leaves, and seldom becomes sufficiently numerous to do much injury.

Argyrotoza Bergmanniana, or Silver-arched Moth.—This little creature measures, when the wings are expanded, about half an inch. The first pair are yellow, clouded with copper, and obscurely netted with the same, having four slightly carved streaks of silvery dots ; the second pair are brown with yellow fringes. This is one of the most plentiful moths we have, being found in every garden, in all parts of the kingdom, during July and August. The caterpillars are brown with a black head, and covered thinly with hairs. When the buds begin to unfold themselves, in April and May, the little caterpillars feed voraciously upon them, and effectually destroy the petals ; when disturbed they run backwards, and descend quickly towards the ground, by means of a web they spin from their mouths. When about to become pupæ, which happens about the end of June, each spins a thick web within the folded leaves, casts off its caterpillar's skin, and incloses itself in a small brown cocoon ; in this state it remains until the end of July, and then appears in its winged state. The eggs are laid shortly afterwards, at the base of the buds, and i not eaten by "Tits," and other insectivorous birds, during the succeeding winter, they become larvæ the following spring.

Pterophorus rhododactylus, or Rose Plume Moth, is also a great feeder upon the leaves ; this is one of the plume-winged species, measuring nearly an inch when the wings are expanded. The first pair are yellow, and consist of two plumes ; the second pair are each divided into three plumes.



S. Holden. del. & Lith.

Lemonia spectabilis.

LEMÒNIA SPECTÁBILIS.

(Showy Lemonia.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
RUTĂCEÆ.

ENERIC CHARACTER.—*Sepals* five. *Petals* five, con-
e, *limb* unequal, *tube* straight. *Stamens* five, inserted
he tube of the corolla, two fertile ones sessile, three
rile ones horned, longer than the tube, covered with
nds. *Disk* cup-shaped, notched. *Capsules* five,
h one-seeded.

PECIFIC CHARACTER.—An evergreen shrub. *Branches* downy; *leaves* petiolate, divided into three leaflets; *leaflets* obovate, obtuse, smooth, deep green and shining. *Racemes* axillary, containing only two or three flowers. *Flowers* rich and deep rose-colour. *Calyx* consisting of five green sepals, inclosed within a two-valved involucre. *Corolla* monopetalous; tube straight, slightly oblique towards the top, *limb* expanded, in five parts.

THIS fine stove plant was introduced from Cuba in 1839 by Messrs. Loddiges,
whose nursery good flowering plants may be seen at any time, and to whom we
e indebted for our present figure. Since we made our drawing, our own plants at
atsworth have flowered; and from the prolonged flowering season and the rich
lour of the blossoms, the plant deserves to be in every collection.

The cultivation is easy: the best soil is two parts sandy heath mould, and one
rt loam, with a small portion of rotten manure; the whole being mixed and
oken together without being rendered fine. During the growing season, strong
at and great humidity, with considerable shade, are requisites for successful
owth. In winter, during the season of torpidity, the soil should be kept partially
y, and the plant stand in a cool place.

The generic name is given "as a slight acknowledgment of the great benefits
nferred, not merely upon science in general, but upon Botany in particular, by the
rge and well-directed liberality of Sir Charles Lemon, Bart., M.P., whose garden
Carclew, near Penrhyn, in Cornwall, has been for many years a fruitful source of
w and interesting plants."—*Dr. Lindley, in Bot. Reg.* vol. xxvi., page 59.

PTEROSTÍGMA GRANDIFLÒRUM.

(Large-Flowered Wingpoint.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
SCROPHULARIÀCEÆ.

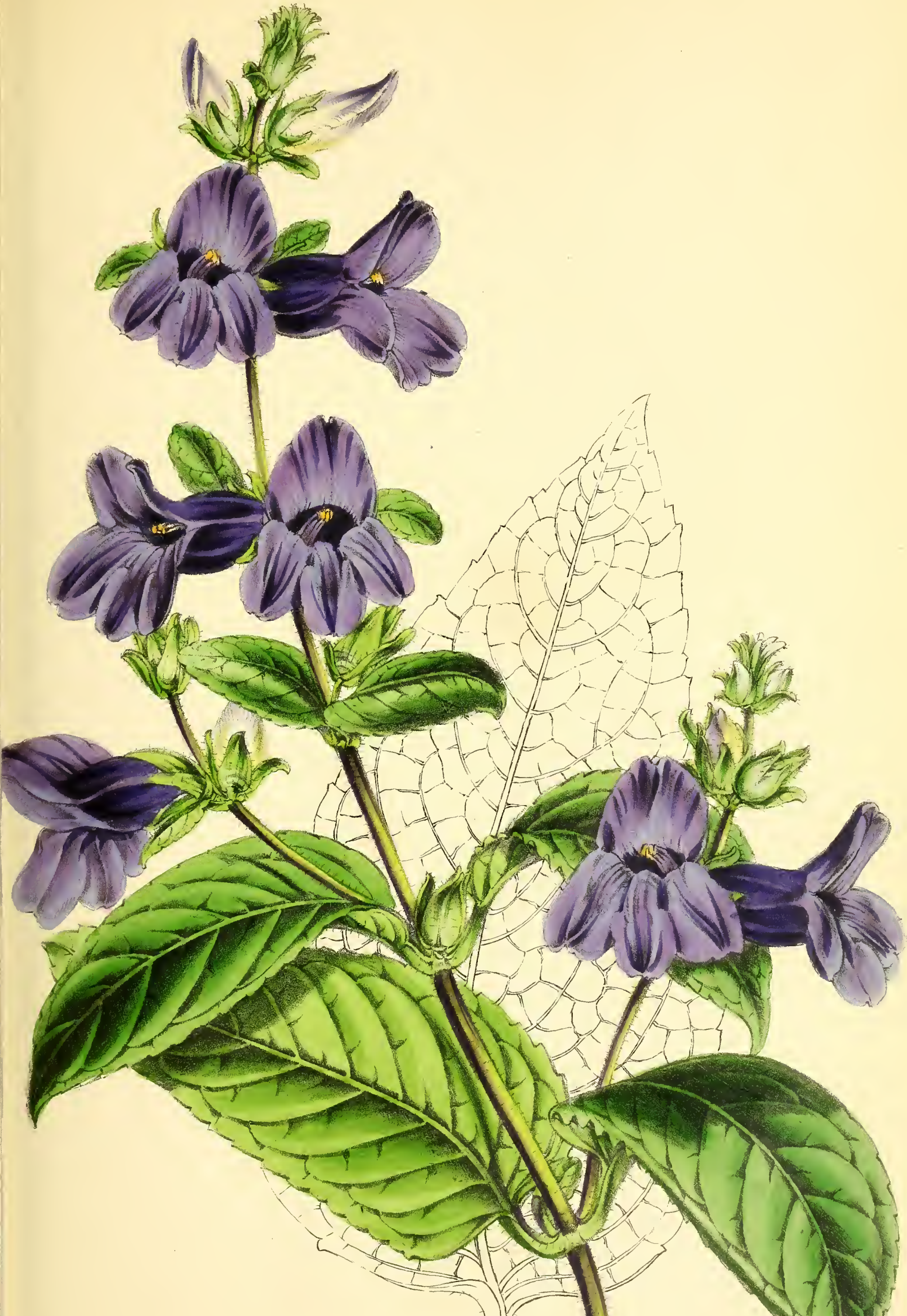
Generic Character.—*Calyx* five-parted or five-toothed, sometimes with outer bracts seated close to the sepals. *Corolla* monopetalous, hypogynous, two-lipped; upper lip emarginate, lower divided into three or four lobes. *Stamens* four, inserted in the tube of the corolla. *Anthers* two-lobed or two-celled. *Ovary* two-celled. *Style* simple. *Stigma* undivided.

Specific Character.—Perennial. *Stems* round; *leaves* opposite, ovate, notched. *Flowers* tubul violet-purple. *Calyx* five narrow green segmen having three bracts seated immediately outside them, broader than the segments of the calyx. *Coro* two-lipped; upper lip broad, and notched in t middle, lower lip divided into three segments. *Stame* only two, fertile.

This desirable perennial has been lately introduced into our gardens fro China, by Mr. Fortune, who "found it growing on hill sides and near streams the Island of Hong-Kong." It is of easy cultivation, and will grow freely in any lig soil where it has good drainage. Usually it has been grown in a pot as a sto plant, but it will probably be found to thrive much better in the greenhouse. grows eighteen inches or more high; and although not very showy, is yet w deserving of cultivation. Its situation in the house should be one where it is n too much exposed to bright sunshine, as it seldom thrives under those circu stances. Increase by division of the roots and by seeds.

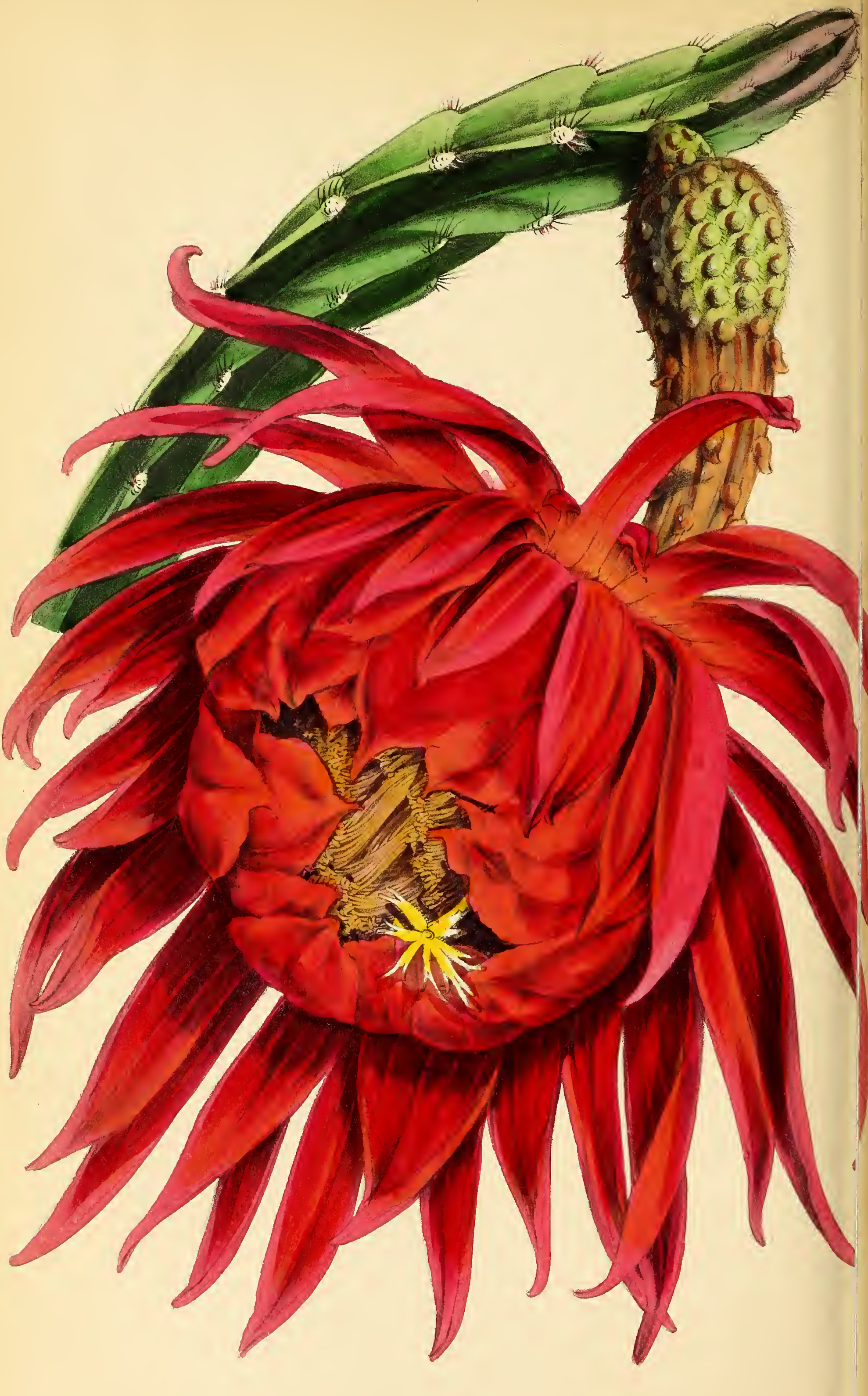
The plant from which our drawing was taken flowered in the stove of G. Lorrain Esq., Wallington Lodge, Carshalton, Surrey.

The generic name is given in allusion to the singular form of the stigma, (whi ends in a thin broad plate, curving forwards, and forming a stigma on its anteri edge,) from *pteron*, a wing, and *stigma*, a point.



S. Holden. del. & Lith.

Pterostigma grandiflorum



S. Holden del. & Lith.

Cereus grandiflorus Maynardi

CÈREUS GRANDIFLÒRUS MAYNÀRDI.

(Lady Maynard's Great-flowering Cereus.)

Class.
ICOSANDRIA.

Order.
MONOGYNIA.

Natural Order.
CACTÀCEÆ.

ENERIC CHARACTER.—*Sepals* numerous, imbricated, ate at the base of the ovary, joined in the form of a g tube; exterior sepals short, interior long and oured. *Stamens* numerous, joined to the sepals hin the tube. *Filaments* long, filiform. *Style* fili- m, multifid at the extremity. *Fruit* a succulent, -celled, many-seeded berry, covered with *areoli* or ercles of spines. Succulent shrubs, with angular ms, and showy, but fugitive, sessile flowers.

PECIFIC CHARACTER.—*Stems* creeping and extending great length, branched, cylindrical, with from five seven angles, the angles bearing numerous small ts of a woolly substance, intermixed with six to ht short setæ. Copious radicles are thrown out from ious parts of the stem, even when the latter does come in contact with the soil. There is no trace leaves of any kind. The flowers are lateral. The is at first globose, acute, then clavate, sessile, ered with imbricated scales, bearing long setæ. When fully expanded, the flower is a span across; the *tube* of the calyx long, green, the *limb* cup-shaped; the former is composed of the united imbricated scales above mentioned, the latter is formed of the long, spreading, tawny-orange, upper segments of the calyx, forming a sort of ray, and of an inner series of calyx-segments or petals, which are oblong, broader upwards, nearly erect, and of a pure white colour. *Stamens* numerous, long, at length inclined to one side. *Filaments* white. *Anthers* linear-oblong, yellow. *Style* as long as the stamens. *Stigma* of many rays.—*Sir W. Hooker*.

MAYNARDI.—*Stems* creeping, angular. *Flowers* when expanded, equal in size to those of *C. grandiflorus*. *Tube of calyx* shorter than that of the species, green, tinged with dull red. Outer segments of the limb narrow, inner segments somewhat broader. Colour a uniform deep orange-red, without any violet hue.

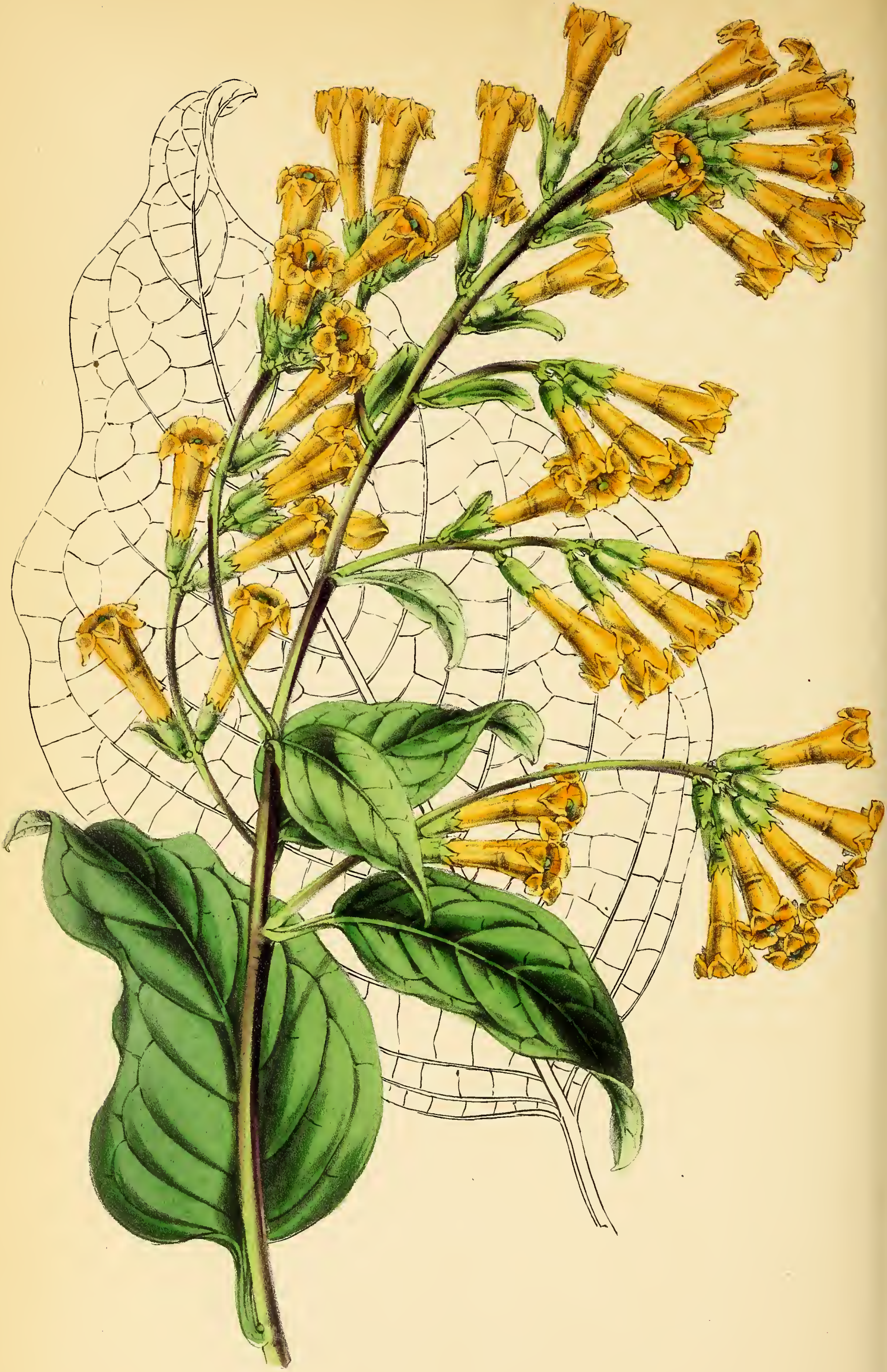
THE whole of the species of Cereus are highly prized, not on account of their m of growth, for the plants merely consist of a few leafless, angular, fleshy ms, having a smooth shining epiderm, with a very small number of evaporating res, and covered with tufts of sharp-pointed spines, which readily penetrate the in. Their beauty consists in the flowers, which are large and showy, of colours rying from the most brilliant crimson, as in *C. speciosissimus*, to red, as in the bject of the present plate; and to yellow and white, as in the *C. grandiflorus*, or ght-blowing Cereus, as it is usually called. The flowers of all are very fugitive, t by a constant successive opening, the blooming season is prolonged, and the nts are thus rendered conspicuous objects.

For brilliancy of colour nothing can surpass the splendid crimson and cærulean ue of the flowers of *C. speciosissimus*; but those of the *C. grandiflorus* possess a licacy and splendour which is not easily equalled. The flowers usually begin to fold themselves about six or seven o'clock in the evening, and by ten o'clock at ght their beauties are displayed, and a most delicious fragrance emitted; towards the dawn of day they begin to close, and by nine or ten o'clock the next mornin they are withered and dead. The final closing of these flowers may be retarded f two or three days when separated from the plants. Cut off the bud before it is full open, and stick the end in wet sand, and set it in a cool and shady place in th stove; or as soon as they are expanded, cut them off, and then with sealing-wa make the wound secure; suspend each in a large jar, place in a cool situation, fill u the vessel with clean cold water, and cover down with a lid.

C. grandiflorus Maynardi was raised in 1837 by Mr. Henry Kenny, garden to Viscount Maynard, at Easton Lodge, Dunmow, Essex. A flower of *C. speci sissimus* was fertilised with the pollen of *C. grandiflorus*. The habit is trailin like *C. grandiflorus*, and like that species, its flowers always open in the evening but they continue expanded about three days, and are in size from nine to eleve inches in diameter, and from seven to nine inches in length, from the base of th tube to the expansion of the sepals. It flowers equally as freely as *C. speciosissimu* The wood and spines are intermediate between the two species, and very distin from any kind previously raised.

For our drawing we are indebted to Messrs. Hugh Lowe and Co., nurseryme Clapton; in whose collection of greenhouse plants it flowered early last spring.

The generic name is from *cereus*, flexible, in allusion to the stems of several the species. *Maynardi* is given in honour of Viscountess Maynard, who is a gre admirer of flowers.



S. Holden, del. & Lith.

Cestrum aurantiacum.

CÉSTRUM AURÁNTIACUM.

(Orange-coloured Cestrum.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
SOLANACEÆ.

GENERIC CHARACTER.—*Calyx* tubular and campanuate, five-toothed. *Corolla* funnel-shaped, limb pliated, five-parted. Stamens inserted in the tube of he corolla, without teeth. *Fruit* a one-celled, feweeded berry.

SPECIFIC CHARACTER.—Deciduous shrub. Stem and branches smooth; *leaves* petiolate, ovate, acute, undulate on the margins; *flowers* sessile, produced in axillary and terminal spikes. *Calyx* pale-green, five-toothed, acute; *corolla* bright orange-yellow, funnel-shaped, contracted at the mouth of the tube; *limb* five-parted, much reflexed. *Fruit* a berry, pear-shaped.

THIS beautiful deciduous greenhouse shrub is a native of Chimalapa, in Guatemala, where seeds of it were collected by Mr. Skinner, who presented them to the Horticultural Society. When in flower the plant is a very striking object; the blossoms are produced in great profusion, and have a delicious fragrance. Their colour is a very bright orange. In winter, when the branches are divested of leaves, a number of white pear-shaped berries make the plant still an object of attraction. The specimen from which our drawing was made, was beautifully in flower during last September, in the fine collection of Sir G. Warrender, of Cleifden.

The greater part of the species of *Cestrum* are stove plants; but the present subject, *C. acuminatum*, *C. undulatum*, *C. cauliflorum*, *C. citriflorum*, and *C. venetatum* grow in the greenhouse. The culture of the whole is very simple and easy. The stove species may be potted in any light sandy soil, or sandy heath mould and light loam mixed and partially broken. In the season of growth they require plenty of heat and moisture, but in the winter to be kept cool and rather dry. The only difference in the treatment of greenhouse species is in the temperature: during the summer turn them out of doors with other hardy greenhouse plants; they will then grow short-jointed and show abundance of flowers. *C. aurantiacum* is the only showy species yet introduced.

The flowers of most of the *Cestrums* are highly fragrant, but the berries of several are fatally poisonous. Some are used in medicine, and others in the arts of life. Amongst the first may be mentioned the *C. venetatum*. The juice of the berries of this species is stated on good authority to be one of the ingredients in the formation of that deadly mixture with which the Bushmen of South Africa poison their arrows The *C. nocturnum* possesses a most delicious fragrance during the night, but its berries are nearly as fatal as the last. *C. macrophyllum* is another species so violently poisonous, that it would be quite unsafe to rub the juice of the berry over the skin, lest it should come in contact with any wound, when the effects would be serious.

Of the kinds used in medicine are the *C. Parqui*, a native of Chili, and introduced many years ago to this country, well known for its very offensive smell *C. auriculatum*, another old inhabitant of our stoves, originally brought from Peru, where it is known by the name of *Heduinda:* this plant emits a delightful fragrance by night, but during daylight is very offensive ; it is highly prized by the native Peruvians. *C. laurifolium*, a native of the West Indies, introduced to this country in 1691, is another of these useful medicinal plants.

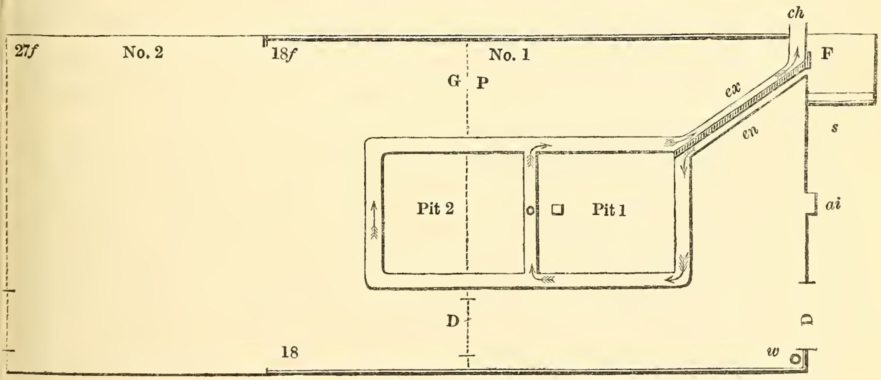
Of the kinds used in the Arts, *C. tinctorium*, a native of the Caraccas, ranks first; the juice of its berries yields a rich blue dye, exceedingly durable, and which is also used as ink. *C. vespertinum* is another species yielding a similar dye, but the colour is neither so bright nor so durable.

The origin of the name is unknown. *Cestrum* was the Greek name for Betony, but what this plant was is uncertain.

MODIFICATION OF POLMAISE HEATING.

It is contrary to our adopted rule to make any allusion to former articles; yet, n the present instance, it has become necessary to deviate, in order to convey a orrect idea of what, upon conviction, appears to offer a great improvement in the onstruction of propagation-houses, and indeed of every glazed erection designed for ne purposes of forcing.

We refer the reader who possesses the back numbers of this Magazine, to page 53, No. 143, of December 1845, for the mere ground outline of a vinery and its ue, which at the first slight inspection struck us as being the most complete mode f any simple erection that had ever met our notice. At that period the flue had ot been tried; the party who planned the arrangements had proceeded in detail, is first object being to amuse himself with a few flowering plants, and at the same ime to procure, by simple protection, a superior crop of grapes. The house, therefore, as without a flue at its first erection; it was lofty, with back and front moveable, wing lights, fixed roof, side-sashes, and rather low walls, so that in fact it was s light and airy as the best glass and the first order of workmanship could render t. It was, however, soon discovered that a flue was essential, and the one which ormed the subject of the plan alluded to, was erected. Since then a further ddition of two extra lights has been made, and as the building is now erfected in all its parts, and that portion of the flue and its appliances which bear upon the proprietor's immediate objects are in full operation, we must enter into a nore minute description of its capabilities; and, in the first place, recur to the lan:—



By the annexed simple outline, we hope to prove the legitimacy of our title, and thus to demonstrate that every available principle of the "Polmaise System" f excitation may be brought into practice in a manner equally safe and beneficial, livested of all the risks which must arise from masses of brick-work containing uel in a state of intense combustion, with their appendages of iron plates and other radiating surfaces of dry heat, which require the qualification of wet blankets What we, and every cultivator of ornamental or fruit-bearing plants require, is a atmosphere equable in its temperature, and rendered moveable, not by currents o cold air, but by the interchange of air from *without* (warmed in its approaches) wit *that within*, which has already been brought to the desired heat by the operation o the flues or hot-water machinery of the erection.

Referring to the ground-plan, it is seen that the portion which terminates at th mark 18 *f*, represents the original extent of the house as we described and figure it in December, 1845:—No. 1 is a part separated now by a glazed partition (G.P. put up last Christmas, with the object of forcing the plants contained therein b the whole power of the flue; and therefore, in conformity with that object the course of the heat is cut off from the left division of the flue, and passe around the right-hand pit exclusively, as indicated by the two darts near *o*.

No. 2 includes the addition lately made, and also that part of the original building which with about two-thirds of the left-hand pit (2) is separated by the dotted lin marked G. D. Thus the house comprises two departments; one, the smaller, tha can with facility be brought up to full pine temperature, or if devoted to ornamenta purposes, to that degree of heat which will be suitable to the cinnamon (*Cinnamomu verum*) and other tenderest plants of the tropics; while the other and larger ma be either used as a simple greenhouse, or otherwise so warmed as to favour th culture of the hardier subjects which we meet with in ordinary plant-houses.

These arrangements, desirable as they always are, especially when effected wit the chaste elegance which has been displayed in the present instance, would no have elicited our remarks, since it is by no means uncommon to meet with graperie and plant-houses so divided by glazed partitions. But here we find that by th ingenuity and happy forethought of the proprietor, the very essence of th "Polmaise System" has been exemplified, and its principles reduced to practice b the simplest contrivances, while the house has also been supplied with rain-water i a way equally novel and convenient.

F, in the plan indicates, as before stated, the position of the furnace and stoke hole. It was described in the former article, and comprises all that is and was th object of the talented projector, as to the surfaces radiating heat. The furnace which is nothing more than a well-built common brick oven, is provided with *close-fitting ash-pit* door. From the furnace there passes a diagonal neck (*en*) little more contracted at its outlet from the fire, and it enters the *flue proper* at th angle marked by the first curved dart; this flue is built of three bricks on edg pargeted within; it is elevated by a wall of bricks underneath it, and forms tw pits, which are fully a yard deep, and therefore prepared to receive a mass of leaves dung, tan, or other material, which may suit the purposes of the gardener. As th flue enters, so also in like manner it carries its smoke by a corresponding diagona return channel (marked *ex*) into the chimney, which is erected at the north-eas corner of the building.

The house was built originally for a cool or late vinery; but when it became
e object of the proprietor to excite one department, and to leave the larger
ivision as a cool house, he determined to see how far it might be possible to keep
p a constant interchange of air, without lowering the temperature of the house, by
e ingress of a current of cold air from without.

To effect this purpose, the pit No. 1 was covered with loose boards, so correctly
tted as to confine the air within, heated by the flue, and to permit none to escape,
xcepting by a square opening (marked ☐) about six inches in diameter, and raised
n inch or two above the surface of the boarding by four strips of wood; this
overing, and indeed every part of the woodwork, is painted pure white, rather
atted, which, with the predominance of fine glass, produces an effect of lightness
at is very uncommon. At the mark *ai* is made a trough or channel of wood,
at can be closed by a sloping flap with hinges, when not in use. It stands level
t top with the eastern side-light, and passes below the surface of the ground, where
is connected with a series of six-inch earthen pipes, which enter the pit No. 1,
ut pass no further than the inner surface of the pit's wall; and thus the air of the
xternal atmosphere may be made to enter the pit, or be taken off at pleasure.
inally, at the circular mark O at *w*, is an orifice made at the level of the ground,
lose to the south-east corner, between the east door and the front wall; it passes
rough the wall, and is connected with a course of six-inch earthen tubes which
re led with a gradual downward slope under the ground outside, but very near the
oundation of the wall, and enter the ash-pit of the furnace; thus completing
e aerial circle.

Having witnessed the lighting of the first fire, and been a party in the operation,
e perfect action of the draught by the flue and chimney was ascertained without a
oubt. When a certain time had elapsed sufficient to bring the flue of the first
ivision to a degree of sensible heat, the *ash-pit door* was completely closed and the
ap *ai* raised to admit air by that channel into the pit. The fire, therefore, could
o longer be excited by any external current; it must and did receive its entire
upply of air through the channel of the earthen tube which had its origin at O,
lose to the south-east corner. Yet the fire drew perfectly, the smoke passed through
he chimney-pot with decision, insomuch that, when the masonry became heated,
was necessary to check the draught by pushing in the chimney-damper. Another
roof of successful operation was required, and that consisted in holding a slender
having of wood over the opening, (marked ☐). It moved up and down, thus
roving the existence of a gentle stream of air passing to and from the pit upwards,
nd *vice versâ;* and as the ascending air communicated sensations of warmth to the
ace when presented at some distance above the orifice, the chain of proofs became
ompleted; and thus, if we comprehend the proposed object by the advocates of "*Polaise,*" a current of warm air, refreshed and renewed by the admission of the external
tmosphere, has been obtained, and constantly kept up, by *the simple machinery of fire-flue.*

We read of very low degrees of heat under the action of the genuine " Polmaise' apparatus ; but by the machinery in question, about four o'clock in the afternoon o the 2nd of March, the maximum temperature of the air being about 40°, *that* o the house was read off from a self-registering " Six" thermometer, at above 65° and that too under the action of the first fire, lighted only three hours before.

This was extraordinary, as has also been the subsequent progress of the plants. S complete, in all it parts, is the furnace, the flue from its entrance to its final exit and the circulation of renewed air, that, while no part is hot or oppressive, the utmos equability of high temperature, (we saw it at 80° in the third week of March,) i regularly maintained. Little else is burnt than small cinders called " breeze"— obtained by screening the ashes bought for the farmers—and very small coke. Th fire is found alight every morning, and is kept on all day without trouble.

When it is considered that the burning fuel is of so low a character, and tha combustion is supported by the air which passes from the house into the ash-pit, i will be evident that a great effective and economical plan has been discovered, an brought into permanent operation.

But another circumstance of practical utility yet remains to be described : th house required soft water, and this was to be obtained by rain only. There were n conveniences for the admission of tanks, and the proprietor determined to have quantity within the vinery. He therefore ordered his workmen to make a zin cistern, which was, for the convenience of approach, to be placed upon, or just above the diagonals *en* and *ex*. Into this cistern the rain which should fall from the glas roof was to be conveyed by zinc channels fixed along the entire front, and connecte with a tube that passed down to the ground, entered the house below and beyond th door, and then rose to within two inches of the top of the cistern, where it was connected, by an adapting brass screw, with the tube that was soldered into the cistern The workmen declared that no supply could be so obtained ; however, the plan wa adopted, and the first smart shower filled the cistern to overflow. Additional spac was required ; therefore, a second cistern was put up at the outside corner, wher the supply tube makes it fall from the front gutters.

It only remains to give an outline of the charming erection, which combines s many advantages. It faces nearly due south ; the back rests upon a low party wal about five feet high; all above that is glass, consisting of light, swing, uprigh sashes made to act with perfect facility by the means of ropes and pulleys, governe by regulating weights ; the house, therefore, is well lighted behind, and its slope i commanding, but not steep. The south front consists of a three-foot wall, on whic rests a curb and a series of sashes, moving by means of hinges fixed on the plat close under the roof-lights ; and these are made to open to any required extent b curved catches of iron, pierced with holes at different distances. The sides ar glazed also, so that the four aspects command all the sun that can by possibilit reach the building.

Everything has succeeded ; and therefore we may be permitted to hope that thi ry imperfect description of a plan that we believe to be perfectly novel in its ief feature, may yet be rendered available to many who have been mortified by peated disappointments ; and also that others, who hesitate to incur certain heavy penses at a very serious risk, may be encouraged to try what can be done by the plication of principles which combine all that is by possibility good in the system rmed the *Polmaise*, without any of the inconveniences which are attached to every ne of the modes of adaptation hitherto described by its numerous advocates.

CULTURE OF DILLENIA SPECIOSA.

This splendid plant is a native of the East Indies, and bears large, showy, yellow owers. In its native country it grows to a good-sized timber tree; but in our oves it is found as a small shrub, often with its leaves brown, and, apparently, orched, as if for want of water.

Strong heat and shelter from direct sunshine are requisites for its health. If the mperature sinks below 60 degrees the leaves will show it, and probably fall off; r if exposed to the direct rays of the sun the leaves curl up and die at the edges. he best way is to allow it to stand at the warm end of the stove during the growing eason, where it will be well shaded with other plants.

Care must be taken, when the houses are fumigated with tobacco for the destruction f aphis, that this plant be not subjected to the smoke, or the leaves will be sure to ither and drop off.

The soil most suitable for it is composed of two parts light rich loam, one art heath mould, and one part very rotten leaf mould; break and mix the whole ogether, but neither sift nor make it fine, but rather leave it in lumps with plenty of bre, and always take care there is a good drainage.

Give a liberal supply of water at the roots when the plant is in full growth, and lso give repeated syringings; but during the dark weather of winter, keep rather ry than otherwise.

Propagation may be effected by ripened cuttings, planted in a pot of sand, and lunged in heat under a handglass; but by no means cut off or shorten the leaves, r success will be very precarious.

NOTES ON THE CULTURE OF GUSTAVIA AUGUSTA.

This fine plant, although introduced nearly half a century ago, is at present ound in very few collections, although from its beauty it deserves universal attention. t is a myrtaceous plant, and bears white flowers.

The culture is, upon the whole, simple and easy; but a strong and very moist atmosphere is requisite during the growing season, and in winter the temperatur must never sink below 60 degrees; and but very little moisture must be supplied.

The soil in which this plant should be grown is composed of equal parts of heat mould and light rich loam, merely mixed and slightly broken together; drain wit crocks, bits of freestone, and a few pieces of charcoal.

Propagation is effected by half-ripened cuttings, which should be planted in san and plunged in heat in the propagating house, or other close atmosphere.

PRACTICAL HINTS ON THE MANAGEMENT OF A FEW SELECT CLIMBING STOVE PLANTS.

Although there are but few persons who are not enthusiastic admirers of the fine kinds of stove climbers, yet, strange as it may appear, it is only in the hands o comparatively, a few cultivators, where we find them so managed as to secure proper development of their varied floral charms in all their pristine loveliness an beauty. Take for illustration that most charming of all beautiful plants, *Stephanoti floribunda*, and examine the pot specimens of it in the collections of any twent cultivators in any county in England, and for one plant which you will find bloomed s as to merit the specific distinction given to the plant, that of "abundant flowering," yo will find ten plants scarcely blooming at all, or so meagrely as to render them almos unworthy of house-room. Look over the plants and you will find them clean an healthy, and for the most part in vigorous growth; if you interrogate the gardene he will probably tell you the plants are almost constantly growing very freely, an yet show little or no disposition to bloom. Look again over-head, at a plan growing in one corner of the bark-bed, with its branches trained to the rafters, o other parts of the roof, and you will see, streaming carelessly, or hanging in gracefu festoons, branches smothered with flowers at almost every joint, and forming spectacle which excites the admiration of almost every observer. Now, why thi difference?—and hereby hangs a tale. In the observation which practice ha forced upon our attention we have almost invariably found that climbing plant flower more abundantly when left in a comparatively neglected or untrained state than when very sedulously attended and carefully trained; and the reason of thi appears to be that these wildlings of the forest and the jungle do not like to b controlled too much by the hand of man; but, leave them to themselves, and allo them to grow almost unmolested, and they will flower as profusely as need b desired.

From this it will be perceived that our remedy for the blooming climbing plants i to allow them freedom of growth, to control them as little as possible, and thus b inducing natural vigour and habit, to promote the production of bloom. So far con vinced are we of the correctness of this view of the cause of shy blooming in man plants, that we will venture to assert that if any person takes two plants of *Allamand*

hartica and treats them precisely alike, except that one shall be carefully and
gularly trained, while the other is left to itself, and if the untrained plant will not
oduce fifty per cent. more bloom than the trained one, why, we have been wofully
ceived.

With these preliminary remarks we shall proceed to offer a few suggestions on
e cultivation of some of the most remarkable stove climbers; and, to render our
marks the more intelligible to the amateur reader, we propose to treat of each
nt separately, and we thus hope to render the pot cultivation of some of the
est climbing plants a little more profitable than, generally, it hitherto has been.

Stephanotis floribunda.—This lovely plant was introduced to our stoves some ten
ars ago, and first produced its flowers in the collection of Mrs. Lawrence, at Ealing
rk, or rather, at that time, at Drayton Green, where its pure white wax-like flowers
d delicate scent rendered it a very deserved favourite. It may readily be propa-
ted by layering the branches or by cuttings; but as it strikes rather tardily, for
ivate purposes, layers are preferable. In layering, all that is necessary is to give
e branch a twist, so as to rupture the sap-vessels, or cut a notch close under a
int, bend the part into a pot, and cover with light sandy soil; sometimes these
yers will produce roots and be fit to take off in a few weeks, while at other times
ey will be months in forming roots; but supposing that your method of propagation
s progressed favourably, and that you have strong well-rooted plants, your best
ethod of procedure will be to give the plants a liberal shift, about the first week in
nuary, in a compost consisting of equal portions of good mellow turfy loam and
rfy peat, with a good sprinkling of half decomposed leaf-mould, and sufficient sand
d charcoal to keep the compost free and open; use the compost in a rough state,
d do not make it too firm in the pots. After the plants are potted they should be
unged in a nice growing bottom-heat of from 75° to 80° and the atmospheric
mperature should range from 60° to 75°.

Under such circumstances the plants will progress with great rapidity, more
pecially if the heat is produced by dung or other fermenting materials. About the
iddle of March they will require a second shift, and by the middle of May a third;
ill continue to use the same compost, and maintain a lively bottom and atmospheric
mperature, of course taking the precaution to avoid burning by excess, either roots
branches. After February the plant may be watered liberally, once or twice a
eek, with manure water, prepared as directed at page 18; and if the walls of the
it and surface of the plunging material are occasionally sprinkled with the manure
ater the atmosphere will be improved thereby and the plants materially benefited.
f these plants progress as they ought to do, they will, by the end of July, stock
fteen-inch pots, and cover cylindrical trellises four feet in height; after this time
hey must be gradually brought to a state of rest; and by placing them in a sunny,
arm situation, close to the glass, every advantage must be taken to get the wood
horoughly ripened; if this can be accomplished early in the autumn, a few
eeks under a south wall in the open air will do the plants no harm. During the
inter keep the plants in a temperature rather under than over 50°, and give no

more water than just what is sufficient to keep the plants from flagging. Plants th treated are sure to bloom, providing the after treatment is suitable; if you kee the young shoots regularly tied down, three-fourths of the bloom buds will go blin but if they are allowed to ramble and remain untrained until the flowers are of som size, no fear need be entertained of the plants progressing in the most satisfacto manner.

The time of introducing the plants into a growing temperature must be governe by circumstances, such as the suitableness of your forcing house, and the time th flowers are wanted. If you want a plant in bloom in April, it must be started i November, for May in December, and for June or July in February.

The proper method of management in the second or blooming season is this Before introducing them to the forcing house remove the branches from the trellis, an having ascertained the length, reduce each about one-third; then with some soap-su and a small brush wash every part of the branches and leaves, and likewise th trellis or trainer; and re-train the plants, taking care to keep the weakest shoots the top of the trellis, and the strong ones at the bottom, so as to give one part chance of gaining strength and to secure plenty of bloom at the lower part of th plant. This being done, remove as much of the surface soil as possible, an replace it with fresh compost, and then plunge the pot in a gentle bottom-heat from 65° to 75°, and sprinkle twice or thrice a week with clean tepid water.

The *Stephanotis* produces its flowers on the young branches; and as the strengt of the bloom is to a great extent governed by the vigour of the branches, it i advisable to force the plants very moderately at first, so as to get them to break a robustly as possible. After they get fairly started and have made shoots sever inches long, the temperature both to the roots and branches must be graduall increased until the former ranges from 75° to 85°, and the atmospheric heat fro 65° to 75°, or even 90° with sun heat. These plants delight in a brisk bottom-he and an atmosphere loaded with moisture, and while they are growing freel they must be abundantly supplied with clean weak tepid manure-water; bein naturally inhabitants of shady places, a little thin shade thrown over them durin bright sunshine will be of benefit to them. In training let the shoots grow thre or four feet long before you control them; then let the points remain loose until the grow several feet more before you train them again; and in this manner you will n only get plenty of bloom, but being able to distribute it, you may have plants regularly covered with flowers from the pot to the apex of the plant.

Stephanotis Thouarsii is said to be a very fine plant; but as we have no seen it in bloom, we cannot pronounce positively as to its merits, or whether it is i reality very distinct from *S. floribunda*. It requires the same treatment as the preceding, but does not bloom quite so freely; but whether this is the nature of th plant, or arises from improper treatment, we at present are not quite able to determine. These plants suffer much from the attacks of the red spider and thrips, and ar also great favourites with the brown scale and mealy bug; but if they are proper cleaned at the time of introducing them to the forcing house and are copiously syringe

l occasionally washed with a sponge during the growing season, no fear need be
ertained of the insects making any serious inroad upon the health of the plants
beauty of their foliage.

From the preceding remarks, it will be seen that the main things to be attended
in the management of these plants, is to get an early and well-ripened growth, a
ig season of rest, to start the plants very gently in the growing season, and to
oid training the shoots until they are of considerable length.

Schubertia graveolens.—This plant was first brought into public notice in the
rsery of Mr. Glendinning, at Chiswick, and was grown for some time under the
me of *Physianthus auricomus*, by which designation it is known at the present
ne in some establishments. It is a plant of vigorous growth, producing a bunch
flowers at the axil of each leaf, like the *Stephanotis*, which it also resembles in
e form of the flower. It is very powerfully scented, and the colour of the flower
a delicate creamy white.

The best method of management is to strike cuttings after the old plants have
ne flowering, which root readily in a brisk bottom-heat in any sandy soil. After
ey are rooted, pot them off singly, and keep them growing until you get the pots
ll filled with roots. From July until October is the proper season of flowering;
t by proper treatment it may be got into bloom a month or six weeks sooner, and
en it forms a very fine exhibition plant.

To attain this end, take a nice strong plant in January, and give it a liberal
ift, using the same soil as for the *Stephanotis*, except that a small portion more
am may be added to it. Plunge the pot in a brisk bottom-heat of from 70° to 80°,
d keep a lively atmospheric temperature. If the heat is produced by fermenting
aterials it will be the best, but, if it is not, the pit or house must be fre-
ently sprinkled with manure-water, to improve the atmosphere of the place
much as possible. In such a situation the plant will grow with great vigour,
d by March will be ready for a second shift; at this time do not spare pot-room,
turn the plant to the forcing-house, replunge it, keeping a bottom-heat of 80°,
d the atmospheric temperature in the same proportion. Under such circum-
ances the plant will grow with great rapidity, so as by May to cover a large trellis.
y this time the pot will be quite full of roots; and, therefore, to induce the plant
form flower-buds, it will be necessary to moderate its growth a little by placing it
an airy and unshaded part of the house, and by giving no more water than what
necessary to prevent its drooping. A fortnight or three weeks of this treatment
ill induce the formation of flower-buds, and these being perceptible, the old system
liberal treatment may be followed, as the blooming principle, once brought forth
this plant, it will continue to flower until the autumn; especially if it is abundantly
pplied with manure-water, and kept in a growing temperature, Being a native of
e interior of Brazil it requires plenty of heat and moisture during the growing
ason, but after the flowers begin to expand the temperature of a warm green-
ouse will be found sufficient to carry the plant through the autumn months.

Unlike *Stephanotis* this plant flowers freely in the first season of its growt and in very small pots; but like that plant, it is impatient of too much trainin In the management of the old plants the best method is to cut them in ve liberally after they have done blooming, and keep them in a comparatively dorma state until January, at which time the greater part of the old soil should be remov from the roots, and the plants be re-potted into smaller pots, using the same s and pursuing the same treatment as with young plants. This plant, when plant out. makes a magnificent warm conservatory climber.

Allamanda cathartica.—From Guiana this plant was introduced in 1785, and h long and deservedly been a favourite stove climber in this country, flowering mc profusely when planted out, but rarely producing many flowers when grown as a p plant. This, we have fully satisfied ourselves, arises from the cause pointed o in the preliminary remarks to these suggestions; a fact which any person wi a couple of plants may convince himself of in a very short time, by training o plant and leaving the other to Nature. The *Allamanda* may be propagated readi by cuttings of the young shoots taken off when they are about three inches long, a struck in sand under a bell-glass in a brisk moist heat. After the cuttings a rooted pot them off singly, using any light open soil, and endeavour to get t young plant well established in six-inch pots by the autumn. If the plants a rooted early in the spring, they may by good management be made to bloom small pots in the autumn, and these make fine plants to grow into specimens in t following season.

Presuming you have strong established plants, take them about Christmas, a having pruned the side shoots to the best ripened buds, reduce the ball a little, so to loosen the roots, and re-pot, using a compost consisting of two parts strong tur loam, one part peat, and one part decayed cow-dung, to which add plenty of coar sand and lumps of charcoal.

After potting place the plants in a forcing house, and, as they break rath tardily, plunge them in a lively bottom-heat; of course taking due care that it not too hot. As the plants progress in growth remove them into larger pots, treatin them liberally, by giving plenty of heat and moisture, and also supplying them du with manure water. In this manner they will grow with great rapidity, after the have once started, and by the time they have made shoots three feet long will, they have not been trained, be showing bloom. Do not, however, be in a hurry train them, or the flowers will go blind, but let them grow wildly until the fir flowers begin to expand. You may then twist and train them to whatever form yc think proper; but the second set of shoots must be left to pursue their own cours or they in their turn will refuse to flower.

It must therefore be taken as a rule in training the *Allamanda*, to allow t flower-buds to be considerably advanced in size before you venture to repress t branches; and if this simple rule is observed, and the plants are liberally treated to pot-room and attention, pot specimens may be had in full bloom from June unt ecember. When the flowers begin to fade, the plants should be gradually dried off, as to bring them entirely into a state of rest for a month or two, before starting em into growth again in February. The *Allamanda* does not like much cold ring its dormant season, therefore you must look to drought rather than a low mperature to keep it in a dormant state. This is one of the few plants which our mmon enemies in plant stoves, insects, do not touch, or at least but very rarely ealy bug and scale will have nothing to do with it, and the red spider and thrips ust be hard driven for pasture when they wage war against it.

Allamanda grandiflora is comparatively a new plant, having been brought into tice three or four years back by Messrs. Veitch and Son, of Exeter, who were the porters of it. It is not nearly so strong in habit as *A. cathartica*, neither is it of ch free growth, or so easily managed. Hitherto, it has been found to bloom ther indifferently when grown as a pot plant, and as the flowers resemble very osely those of *A. cathartica*, it is not likely to become a very general favourite less subsequent experience, and experiments with older plants, should enable us induce a more profuse habit of blooming.

CULTURE OF STENATHERA PINIFOLIA.

From the delicate foliage of this old and desirable greenhouse plant, it is indisnsable that it is never crowded amongst other plants of a different habit; or the ss of foliage will be the certain consequence.

If in the summer season this plant is placed out of doors, be careful not to set it an exposed situation, either where there is too direct sunshine or liability to e action of the wind. If convenient it is always advisable to keep this, and indeed e whole of Epacridaceous plants, under cover at all times.

In potting never allow the roots to become matted, but always pot when the ots have spread moderately through the soil; this is especially necessary if the ants are ever turned out of doors, for the sun would otherwise dry up the small rous roots, and the loss of the plants is almost certain.

The proper soil for the purpose of potting is three parts sandy heath mould, and e part sandy loam. Mix and break together, but do not make too fine, lay in the ttom of each pot a good handful of broken crocks for drainage, and mix a few rough the soil, for without a good drainage it is impossible to keep the plant in a ate of health.

Administer water as often as requisite, and be cautious never to allow the soil to come dry and baked, for the tender roots are incapable of enduring such a ivation of moisture.

For propagation take off young cuttings in the autumn, plant them in pots of nd, cover with a glass, and set on a shelf in the propagating-house or other similar tuation, and the following spring they will strike root freely.

A FEW REMARKS ON THE VARIOUS SPECIES OF MUSA.

In Mag. Bot. vol. 3, page 51, is a plate of *Musa Cavendishii*, and also a detailed account of several of the known species, as *M. Cavendishii*, *M. paradisiaca*, *M* *sapientum*, *M. rosacea*, and *M. coccinea*. Their history and botanical differences were gone through and illustrated, and the methods of culture given; we are no about to repeat what has there been said, but purpose directing attention to a few points in their management, which ought not to be overlooked.

It may be objected by some that Musas are unworthy of much attention, becaus to grow them requires considerable extent of accommodation, and as ornamenta objects they are coarse, and by no means showy; neither of these objections are s heavy as they at first sight appear. The first being only applicable to very smal establishments, and the last only to those very few instances where plants which alone are remarkable for beauty in flowering are esteemed. If no advance as t style and dimensions had taken place in our glass erections within the last ten o fifteen years, *Musas* and other plants of similar habits would have continued to exis as mere botanical wonders, or curiosities; but progress has been made, and that s great and extensive, that now, in very many instances, sufficient space and suitabl accommodation is afforded both for *Musas* and many others of our finest tropica fruits.

Musas when they flourish are amongst the most splendid objects in a tropica house. To induce them to thrive well the following particulars may be of som service:—all the species are very gross feeders, and soon exhaust the richest soil therefore, however they may be grown, whether planted in a prepared border, o grown in large pots, or tubs, it is indispensable that the best and very richest eart should be used which it is possible to procure. Rich and well rotted manure is als a very important ingredient, but too much of it must not be added to the soi otherwise the plant may receive injury whilst it is young, and its growth be, i consequence, retarded for some time. *Liquid manure*, not too strong, may be continually supplied during their progress of growth, with much advantage.

In the growing season strong heat is indispensable to render the development as speedy and perfect as possible. The air, too, can scarcely be loaded with too muc humidity at this time, and by often carefully syringing, so as not to break the tende leaves, the plants are kept clean and free from insects; watering at the roots i another very important point, this the plants require to be administered freely, but i must always be regulated by the situations and conditions of the various plants. I exposed to a strong heat and powerful light, or their roots are confined in tubs o pots, they can scarcely, in the time of growth, receive too much; but, where there i considerable space for the roots to grow, or where they are planted in a large an spacious bed of earth, the supply of water need not be so great.—Liquid manur may be regulated by the same rules.

Under favourable circumstances, two years will be sufficient to bring the *M. Cavendishii* and *M. Dacca*, *&c.*, into fruit; but the larger growing kinds require three years, generally speaking, to fruit.

During the course of growth several suckers will be furnished by each plant, these must be supplied with new soil, to assist their growth as much as possible. It remains to be added that *Musas* should be started into growth as early as *possible in Spring*, and induced, by every possible means, to perfect their developments for the season, very early; too much care cannot be exercised to accomplish this in proper time, and keep them in a quiescent state by withholding water, &c., when their growth has been matured. In starting them into growth it is also necessary to be equally careful, and proceed with the increase of heat and water gradually; plants kept growing very late in the season, or exposed to much moisture when they are at rest, invariably become injured, or lose their foliage, and very often become so unsightly as to render their remove necessary.

Musa Cavendishii is the best for general culture, as it can be grown and fruited wherever there is a space of soil eighteen inches square to be devoted to it in an ordinary stove; liquid manure being abundantly given. The fruit of this excellent species is too well known and esteemed to require further mention.

The above few remarks would probably suggest themselves to any person of experience, and therefore to them can be of little service; but there are many cultivators who have, hitherto, had little opportunity of growing these plants, to such our observations will be of use.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIODICALS FOR FEBRUARY AND MARCH, &c.

ÆCHMEA DISCOLOR. A singularly attractive plant, from the rich coral-red of the panicle, the flowers being of the same bright vermilion colour, and the calyx tipped with black; also from the great length of time the plant continues in blossom, through the whole of the winter months. The unexpanded buds have a most striking resemblance to the well-known beads commonly called "crabs' eyes," which are the seeds of *Abrus precatoria*, only that they are much larger. The species is probably a native of Brazil.—*Bot. Mag.*, 4293.

ANIGOZANTHOS FULIGINOSA. This is one of the few new plants figured in the "Botanical Magazine," of which no living specimen yet exists in our gardens. It highly deserves cultivation, and is among the rarest of the genus yet found in Australia, and is thus noticed in conjunction with another species, *A. pulcherrima*, figured *Bot. Mag.*, 4180, in a letter from Mr. J. Drummond, published in the "London Journal of Botany," vol. iii., p. 263:—"By a ship now about to sail I send two fine species of *Anigozanthos*, collected by my son (since killed by the natives) in the vicinity of the Moore River. The dark flowering one (*A. fuliginosa*), of which but two specimens have ever been found in bloom, is a real *mourning flower;* the upper portions of its stem and lower portion of the corolla being covered as it were with black velvet; the corolla is deeply cleft, expands about two inches, and is of a pale straw colour. The species is not allied to any other yet discovered in the Swan River settlement."—*Bot. Mag.*, 4291.

ANGRÆCUM FUNALE. One of the rarest and least known of the West India Orchids, which though referred by Lindley, in the "Genera et Species Orchid," to *Æceoclades*, that excellen botanist has since acknowledged it to be a true species of *Angræcum*. *A. funale* and *A. filiform* are the only species yet detected in the new world, and both are aphyllous, the rest being al natives of tropical Eastern Africa and adjacent isles. *A. funale* grows on the trunks of trees i the mountains of Jamaica. Attached to a block of wood, and freely supplied with moisture, i produced its green and white, highly fragrant blossoms, in the winter of 1846.—*Bot. Mag.*, 4295.

Aquilegia jucunda. This plant Dr. Fischer says stands intermediate between *A. glandulos* and *A. alpina*. The sepals are ovate, tapering to the point, and deep blue; the petals are roundis ovate, whitish, and touching each other by their whole length. It is found in the mountains o Siberia. In gardens it is a fine hardy perennial, growing about a foot high, when planted in a compost of sandy loam and leaf mould. It is well suited for Rock-work, where it can be kept fre from damp when in a state of repose, but freely supplied with moisture during the growing season otherwise the plants dwindle away and never flower. It is increased by seeds and division —*Bot. Reg.*, 19.

Brunsfelsia nitida Jamaicensis. This is the variety *Jamaicensis* of *B. nitida*, of Mr Bentham, being what corresponds with the specimens sent by Mr. Purdie from Jamaica. It is a handsome plant, with large yellow flowers, and blossoming during the summer months copiousl in a cool stove, and easily increased by cuttings.—*Bot. Mag.*, 4287.

Columnea aureo-nitens. In the Royal Gardens at Kew this plant flourishes in a mois stove, producing its blossoms in autumn and early spring. The flowers and nearly the whole plant but especially the younger portions, are densely covered with a rich gold-coloured clothing of silk hairs.—*Bot. Mag.*, 4294.

Cœlogyne speciosa. This species was sent from Java to Messrs. Veitch of Exeter. The pale tawny sepals and petals, and pitch-brown lip of this plant detract from its beauty, notwithstanding that they are relieved by a broad white column, and a pure white termination to the lip and that its flowers are nearly four inches diameter when fully expanded. They have, however a very singular appearance, and if they are produced in greater numbers, will be attractive s long as the white remains unchanged.—*Bot. Reg.*, 23.

Echinocactus Williamsii. A neatly-formed species, which has a pretty appearance when its starry blossoms are expanded. The flowers are pale rose-coloured, and are produced in the summer months. *Bot. Mag.*, 4296.

Gongora bufonia leucochila. A pale variety of *G. bufonia*, with sepals pale purple, and lip white.—*Bot. Reg.*, 17.

Henfreya scandens. Under the name of Dipteracanthus scandens this plant was exhibited by Mr. Glendinning of Turnham Green, at a meeting of the Horticultural Society, a short time ago, when it was awarded a Knightian medal. It is an Acanthaceous plant. *Bot. Reg., descrip.* fol. 23.

Pancratium humile. A diminutive yellow flowering species, the humblest of Pancratiform plants.—*Bot. Reg.*, 22.

Odontoglossum Warneri purpuratum. The original of this dwarf species is no doubt a native of some part of the tropical regions of America. The present variety was obtained from Mexico by Messrs. Loddiges. A healthy mass of it is very handsome, the yellow of the lip and the purple stripes of the sepals and petals being deep and clear. *Bot. Reg.*, 20.

Pharbitis cathartica. A beautiful Convolvulaceous plant, the flowers of which are particularly vivid, varying from deep reddish-purple to rich violet-blue. The 'Flore Medicale des Antilles' states that M. Bauduit, a rich proprietor of St. Domingo, discovered in this milky plant a resinous juice, which coagulates and proves to be profusely purgative. He formed of it a much approved syrup, which, in the French colonies, bears his name. *Bot. Mag.*, 4289.

Siphocampylos microstoma. Among many fine species of Siphocampylos detected by Mr. Purdie in New Grenada, few, if any, can vie with this in the size of the flowers and richness of their colour. It seems also to produce its blossoms early and freely, and is a great acquisition to the stove during autumn and winter, and in summer in the greenhouse. The flowers are a very brilliant scarlet. *Bot. Mag.*, 4286.

PLANTS NEW OR INTERESTING, IN FLOWER IN THE PRINCIPAL SUBURBAN NURSERIES AND GARDENS.

Aerides virens. This very handsome and lovely species is now exhibiting its delicate wax-like flowers, from two racemes, each about a foot long. The flowers are like *A. odoratum* in form and fragrance, but much handsomer in appearance, from the delicate lilac tint infused through the flower, a deep spot of violet placed at the tips of the petals, while the labellum is covered with smaller spots of a rosy colour ; its habit is less robust than *A. odoratum,* foliage being longer and narrower. The specimen is flowering at Messrs. Loddiges, Hackney.

Bletia spe. A remarkably pretty and interesting plant, which evidently belongs to this race, is now in flower in the Royal Gardens, Kew. It differs from the rest of the species by its flower-stems being branched, so that, instead of a cluster of flowers at the top of the stem, you have a panicle. The stem is so light as to be scarcely able to support the weight of flowers, which are small, of a delicate rose colour, the lip tipped with deep crimson. We found some of the stems had as many as thirty-six flowers upon them. The bulb small and round ; leaves long and narrow, near eighteen inches long, and only an inch and a half wide. The profusion of flower and graceful character of its habit will make it an object of considerable attraction. The specimen has been in flower several weeks.

Camellia reticulata. When a fine, though old plant, flowers in a superior manner, we hope we may be held excused from again bringing it before the notice of our readers. The specimen we wish to notice is in flower in the conservatory of Sir John Broughton, Kingston ; and, whether from the largeness and beautiful growth, or the number, size, and deep rose-colour of the flower (approaching crimson), it stands unrivalled as a specimen. The plant is about twenty years old, set in the border, has a short thick stem for about a foot, when it separates into three branches or trunks ; these again throwing laterals out close to the ground, extend to thirteen feet wide, and the loftiest branch would have been fifteen feet high, but that two feet were taken off last year to keep it from straggling. We were informed by the gardener (Mr. Redding, jun.), that he only allows one flower to a shoot, and had plucked nineteen hundred and fifty buds, leaving seventeen hundred and fifty flowers upon the plant, each flower averaging between seven and eight inches in diameter. Our readers may form some idea of its splendour from the immense number of flowers. Sir J. B. has always been noted for his choice collection of these handsome flowers, and any one who has been favoured with a sight of them must express their satisfaction at the truth of such report, whether from the luxuriance of flower or healthy condition of the plants.

Dendrobium anosmum. This very handsome species has lately been showing its charming flowers in the nursery of Messrs. Loddiges, Hackney. It approaches nearest to *D. macranthum* in habit, but differing widely in its flower, being smaller, less straggling, more compact in form, and set closer in pairs on the bulb without foliage. The flower is of a delicate lilac colour, relieved by a deep crimson purple, covering the labellum, leaving only a narrow margin of pure white. The flower differs again, from *D. macranthum,* being devoid of that strong odour of rhubarb, which renders that species so obnoxious.

Epacris, *var.* At the nursery of Messrs. Fairbairn, Clapham Rise, we saw some very excellent hybrid varieties, from *E. impressa* and *E. campanulata,* varying in tint from the deepest crimson to pure white. One variety, pale pink, has black anthers, which give it quite a novel appearance ; another variety expands its flowers pure white, and as it goes off becomes a rich, lively pink ; seeing the plant about mid-time of its blooming, it has quite a variegated appearance. The habits of the whole seem to be good, and the flowers have not only colour but size to recommend them. They flower in the greatest profusion, and for a much longer period than the species.

Justitia spe. A plant said to belong to this genus is now in flower in the Royal Gardens, Kew. The foliage is much like the *Justitia,* though larger than most of the species, and of a very bright, glossy, green colour. The stem, a dark purple, is two feet long, bearing for about six inches at the top a profusion of small scarlet flowers, set in whorls of ten or twelve thickly together. The flower has a small, thin tube, an inch and a half long, spreading at the point into five divisions about half an inch in diameter. The plant, including the flower-stem, is from three to four feet high.

Melanthium triquetrum. A pretty native of North America, and now flowering profusely i the Royal Gardens at Kew ; the plant has rush-like foliage, eighteen inches long, bursting abou midway, to allow the flowers to exhibit themselves. The flowers are a delicate white, having slight tint of pink upon them, with a deep purple spot at the base of each petal ; they are about a inch and a half in diameter. The spike is three or four inches long, holding eight or ten flower When a mass is seen in good perfection, it has a very lovely appearance.

Salvia spe. Two new species (one scarlet, the other blue), have shown their inflorescence i one of the stoves in the Royal Gardens, Kew. The scarlet one, though brighter, is very nearl allied to *S. splendens* (without the large bracts), both in form of flower and habit of the plan The blue one has much the habit of *S. patens*, while the flower is much smaller, though of a ver brilliant colour, which we fear will not be a sufficient attraction for cultivation, when contraste with *S. patens*. The flower is neat, and apparently produced in abundance.

OPERATIONS FOR MAY.

In this month vegetable nature is generally in full and vigorous growth ; unabated attention i daily required, especially in the stove, to afford every assistance in rendering the various developments as healthy and perfect as possible. This, if the plants are placed in proper soils an situations, may now be chiefly effected by strong heat, great humidity, partial shade, watering syringing, air judiciously admitted, keeping down insects, and freeing the leaves from accumulations of dirt. Much of the *first* can be accomplished in fine weather by the natural *heat* of th season during the day time, but fires will always be requisite at night. The thermometer may b allowed to range, generally speaking, from 80 to 95 degrees, (according to the weather), by day with abundance of moisture, and not lower than 70 degrees by night. *Humidity* may be obtaine by tanks, throwing water about the floor, and other parts of the house, and by syringing. *Shadin* is only generally necessary on very bright days, or with some particular plants which will not bea the sunshine, as *Brownea, &c.*, unless there is a deficiency of moisture in the air ; then ever plant will be more or less affected by the strong light and heat. *Air*, though very beneficial, shoul be given with judgment ; high temperature must be obtained, nor can humidity be, in any respect dispensed with ; the admission of air, therefore, must be regulated by these two requirements which a judicious cultivator will easily understand.—Any dirt on the leaves not removable b syringing, must be washed off with a sponge.

These are some plants whose state of growth might merit especial notice in this place, viz. the various species of *Hibiscus* ; these are all now in vigorous growth, and with care will be fin spectacles by and bye. They are exceedingly liable to the attacks of Aphis. Syringe often an keep them as clean as possible. *Passifloras* of various kinds will now be expanding their blossoms where it is desirable to have a good show of fruit hanging upon them in the autumn, fertilise wit the pollen of *P. edulis* and *P. cœrulea*, no other kinds appear to answer so well ; by this mean *P. quadrangularis, P. alata, P. Buonapartia*, &c., will be perfect pictures during the autumn The various kinds of *Achimenes* must now have particular attention if a good bloom is to be had *Barnadasia rosea* will be better now placed in the greenhouse.

In the Orchideæ house the same routine of treatment should be proceeded with as for las month, that is, heat, moisture, and shade.

In the Greenhouse Chinese Azaleas should be potted as they go out of flower, and cuttings pu in as soon as the young wood is ready. *Epacrises*, and other plants of similar habits, may be now increased by cuttings. The *Chirita Zeylanica*, now coming into flower, must be well shaded Where it is desirable to have a quantity of plants flowering late in the autumn, some *Pelargoniums Calceolarias*, &c., may be set apart for the purpose, and if the flowering buds be carefully picke off as they appear, and the plants be kept in a fine vigorous growth, the greenhouse will be rendere very gay at a time when flowers in the open air begin to be scarce. This is also the very bes time to put in cuttings of *Pelargoniums, Proteas, Leucadendrons, Passifloras, Fuchsias*, &c Watering is now of considerable importance, and should be administered liberally.

In the open air this is a busy month, being the proper time for filling up the beds of the flower arden, for a summer and autumn display of flowers. This is done chiefly with *Verbenas*, *Salvias*, *Petunias*, *Anagallis*, *Pelargoniums*, *Fuchsias*, *Alonsoas*, &c., in preference to annuals, which soon ease flowering, and become shabby. It is better to sow annuals either in the borders or in rows ound some of the beds in the flower garden, near the edge. In planting do not lose sight of harmony in colours, nor of the rules generally observed to obtain a good effect. The centre bed hould always be planted with some species growing strong, and very conspicuous when in flower, or else it should consist of a basket of flowers, a fountain, or something else which will form a onspicuous centre object; every surrounding bed should have another similar bed on the opposite ide of the group, planted so as to exactly correspond both in habit and colour. If the beds are cut out on the grass, very rich and lively colours are requisite to give a warm and cheerful appearance; but if the beds are made on gravel, more pale-coloured flowers may be introduced.

Keeping down insects is a very important part of successful cultivation, for without this no plant can be kept long in vigorous growth. Those which may be mentioned as very prevalent at this season, are the common Brown Scale (*Coccus hesperidum*); the small White Scale (*Aspidiotus Nerii*); the Brown Limpet Scale (*Coccus patellæformis*); the Black Turtle Scale *Coccus testud*); the small Brown Scale (*Aspidiotus Proteus*); the Mealy Bug, (*Trechocorys Curt.* [*Coccus*] *adonidum*); the Olive Green Aphis (*Aphis cassiæ*); and Red Spider (*Acarus telarius*).—The Brown Scale (*Coccus hesperidum*) is so well and universally known, that nothing need be said in point of description. The small White Scale (*Aspidiotus Nerii*) is a most destructive little creature, and exceedingly difficult to extirpate, for they secrete themselves in niches in the bark, on the under sides of leaves, folded buds, and in other situations where the application of remedies can with difficulty reach them; they attack almost, indiscriminately, all plants with hard wood and shining leaves, but avoid those where the wood and leaves are very downy. The economy of these insects resemble in many respects that of the *C. hesperidum*, but, both male and female are much smaller; the latter is more prolific, and when fixed, has less the appearance of a living creature. The colour is a pale yellowish white, inclining in the centre to a brownish buff; the form is nearly round, and the whole very thin and flat; but if the shield be carefully raised, and examined with a miscroscope, it will be found to cover an almost incredible number of very minute eggs. In the course of some days these eggs are hatched, and in a week or so afterwards, the young quit the shelter of the shield, proceeding from the lower extremity, and thus leave it unmutilated, and nearly as entire to appearance as ever. The young are at this time, not only remarkably small but somewhat active, and with a good glass may be seen moving about from place to place, exhibiting nothing of that torpor which after they become visible to the naked eye, is their unvarying characteristic. In a few days after their separation, the females select a situation whereon to fix themselves for life; they there commence sucking up the juices, assume the form in which we usually see them, and lay their eggs. After having performed this great business of their existence, they die, and their skins furnish habitations for their numerous progeny. The males are much smaller than the females, and very dissimilar in appearance, being in reality little flies of a slender make and yellowish brown colour; they have antennæ and two black eyes, also two bristles on the abdomen, very much like those of Aphis; they have six legs and two long semi-transparent wings, more than twice the length of the animal's body. They are seldom on the wing, but may often be seen slowly crawling over the branches or leaves of infested plants; and from appearance their life is extremely short, probably not exceeding a few days.

The Brown Limpet Scale (*Coccus patellæformis*) bears a great resemblance to the *C.hesperidum*, but is intermediate in size betwixt the latter, and the large winter scale of the Mealy Bug (*Trichocorys adonidum*) being larger than *C. hesperidum*, and smaller than *T. adonidum*. This especially infects *Cinnamomum cassia*, *C. verum*, and other aromatic plants, and from the rapidity of its increase, is very difficult to master. The colour of the shield is dark brown when the insect is matured, and of an oval shape; but when young, and seated on the tender leaves of plants, they are pale buff.

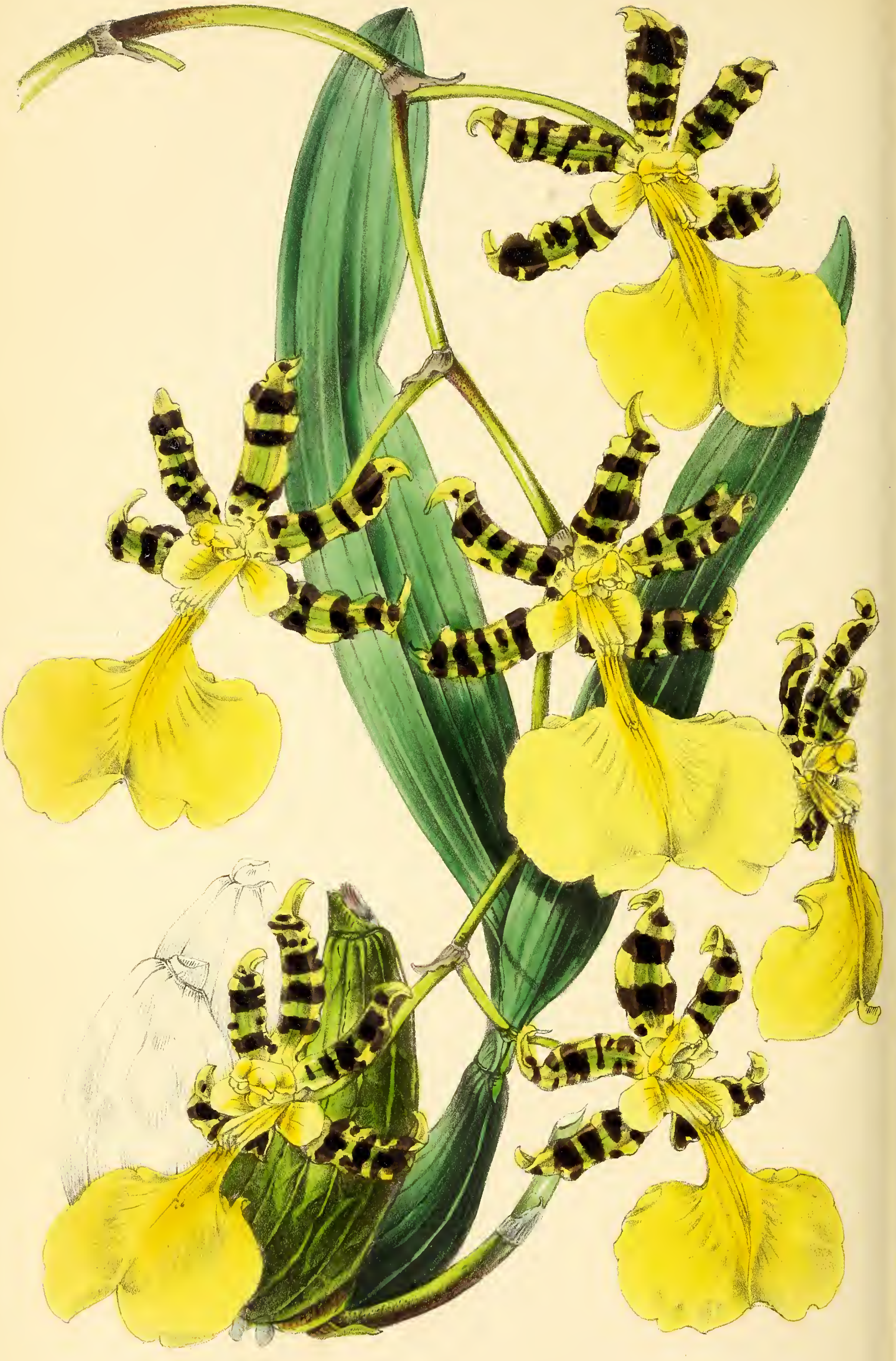
The Black Turtle Scale (*Coccus testudo*) is smaller than the last and not so flat. It infests the leaves and stems of most hard-wooded stove plants, but does not refuse those subjected to the temperature of the greenhouse. This species is found seated both in the upper and under side of the leaves, but prefer the latter, and usually fix themselves along the midribs. In shape they are oval, somewhat cylindrical, covered with tufts of short downiness, not very conspicuous, but withal glossy and of a dark-brown colour. The young are flat, of a pale orang colour and semi-transparent, and are also active, like those of the Small White Scal (*Aspidiotus Nerii*).

The Small Brown Scale (*Aspidiotus Proteus*). A very minute species of Brown Scale, of a oval form, and very prevalent in hothouses.

The Mealy Bug (*Trichocorys* [*Coccus*] *adonidum*). This species is larger than any of the pr viously mentioned kinds, when full grown it is more than twice the size of *C. hesperidum*, and is a universal depredator ; for although it prefers plants with hard wood and shining leaves, yet it wi attack those with every description of habit. The body of this kind when divested of its wooll appendages, is of a dull crimson colour, not much unlike the cochineal, (*Coccus cacti*,) but ver inferior in brilliancy ; it is marked across with several lines, which distinguish the number (segments; and the whole is thickly covered with a short white down, not much unlike that of th American Blight, (*Eriosoma mali*,) only much shorter. It is not so sluggish as the previousl mentioned species of scale, but may often when grown to a large size be seen crawling from on situation on the plant to another. In the autumn the female having grown to her full size, select a situation where she may pass unmolested through the winter, and deposit her numerous egg This is always on the stems or branches of the infested plants, and never on the leaves ; in thi situation, she forms a large, deep brown, oval shield, glossy, and usually as nearly the colour of th stem on which it is seated as to remain easily unnoticed by any except a practised eye. Beneat this shield her eggs are deposited, and remain securely covered, and the young also remain ther for some time after they are hatched. In the following February or March, according to the temperature kept in the house, the young having become much increased in size and the parent being deac the shield is partially raised, and the young are observed enveloped in a thick cottony covering and in the course of a week or two afterwards, they quit their protection of the shield, separat from each other, and establish themselves upon the different plants in the immediat neighbourhood.

The Olive-coloured Aphis (*Aphis Cassiæ*). As general depredators, perhaps no insects ar more injurious than Aphides, nearly every species of plant, whether exotic or native, being in greater or less degree infested with them at one time or other ; and it has been thought by man persons that every genus of plants has its peculiar species of *Aphis*. The present subject feed upon all the tender kinds of *Cassia*, *Mimosa*, &c., chiefly selecting such as have small an tender foliage, as *Mimosa*, *Tamarindus*, *Poinciana*, &c. Whether this species of aphis is a nativ of India, and was originally introduced to these countries along with tropical plants is unknown but it is evidently unable to bear much cold, and thrives with the greatest rapidity in a hot dr atmosphere, and is now so common an inhabitant of our stoves that few either large or smal collections are without them. The males have four long transparent wings, but the females ar wingless. The colour is a dark olive green whilst young, but as they advance in age they becom nearly black. They increase rapidly, and soon cause the leaflets to become sickly and die.

Red Spider (*Acarus telarius*). Nearly all kinds of plants, and even the food we eat, are, at on time or other, infested with some species of mite, and so are nearly all animals with which we ar acquainted. The *A. telarius* is a common pest to our plants and appears to equally multiply a all seasons of the year, if the temperature and other circumstances be suitable. The females la their eggs generally on the backs of the leaves, because there they are sheltered from intense light The eggs are very minute, of a whitish colour, and not collected in masses, but scattered thickl all over the leaves, as may be seen with a good microscope. In eight or nine days the eggs ar hatched, and the young begin to move about upon the leaves. They are at first remarkably smal and colourless, but of the same form as the parents. As they advance in growth they becom more red ; when half-grown they are very active, and when arrived at their full size, are dar brown and slightly hairy. From the time they issue from the egg until they are full grown, the cast their skins several times, becoming each time something darker in colour, but in other respect changing little except in size. They construct for themselves close silken webs, by which the travel from one leaf to another ; these webs also being closely woven on the under sides of th leaves, shelter the young from the effects of moisture, which would soon prove fatal.



S. Holden, del & Lith.

Oncidium Barkeri.

ONCIDIUM BARKERI.

(Mr. Barker's Oncidium.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDACEÆ.

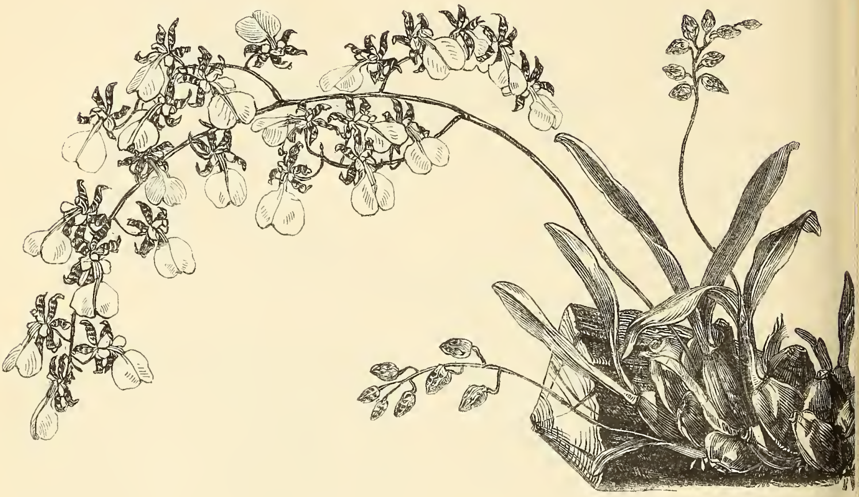
Generic Character.—*Perianth* showy. *Sepals* often ndulated, lateral ones sometimes connate with the ower part of the labellum. *Petals* similar. *Labellum* argest, spurless, continuous with the column, variously obed, tubercled or crested at the base. *Column* free, emi-cylindrical, winged at the top on both sides. *Anthers* usually two-celled; rostellum sometimes hortened, sometimes elongated and beaked. *Pollen-masses* two, furrowed behind; caudicula plain; gland blong.

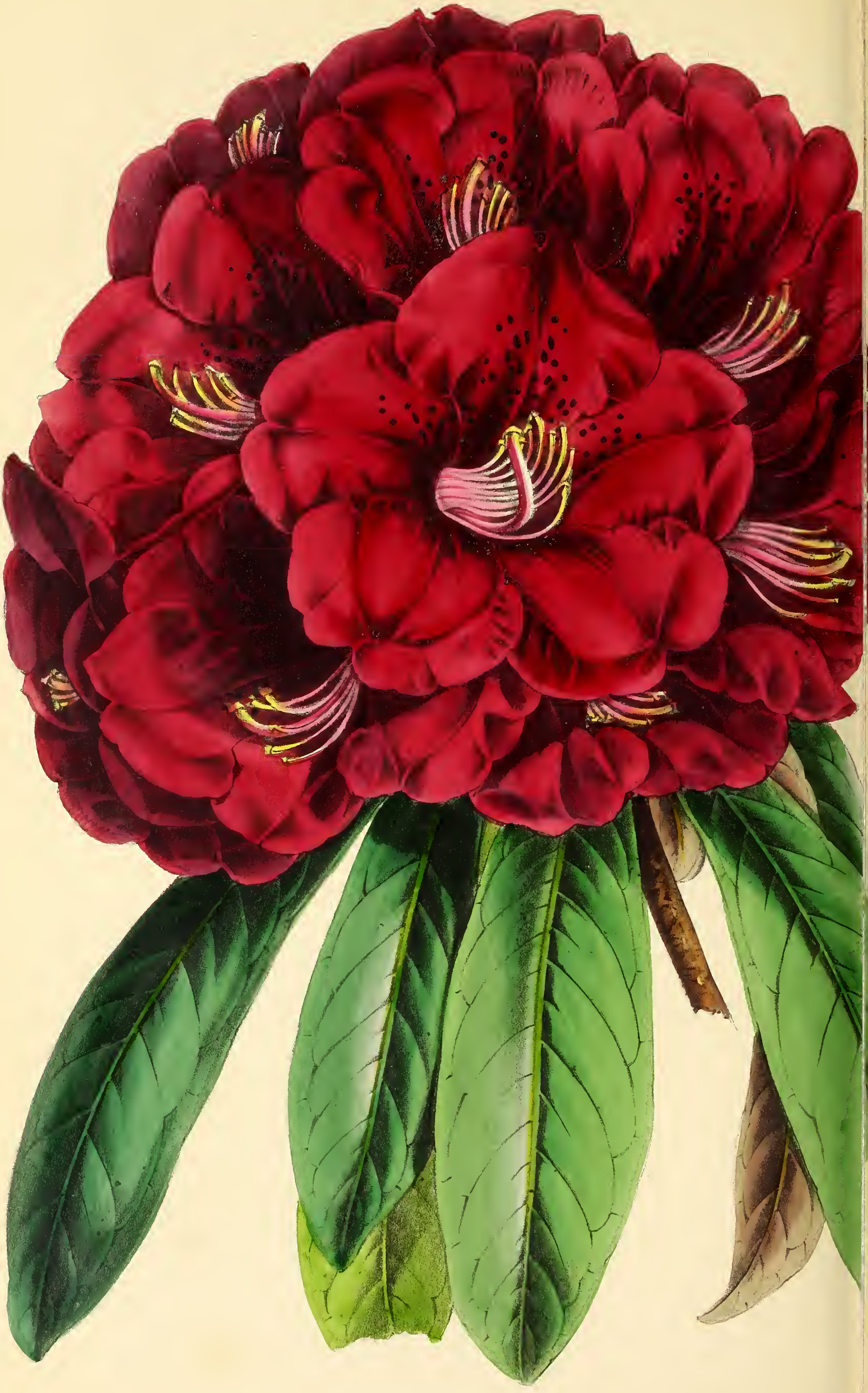
Specific Character.—*Pseudo-bulbs* oval, compressed, lunt-edged, with a furrow or two passing down each ide. *Leaves* small for the size of the plant, two to ach pseudo-bulb, of an oblong-lanceolate form, with long sheathing striated footstalk, which is distinctly rticulated in the middle. *Flowers* disposed in a imple curved raceme, and consist of from five to seven in number. *Sepals* and *petals* alike in form and colour, linear-lanceolate, wavy, spreading, or turned back, the lateral very slightly adhering at the base; they are covered with deep rich brown spots and bands on a pale cinnamon-coloured ground. *Lip* pure yellow, without spotting, much paler on the under side, and longer than the sepals; middle lobe large, broader than long, slightly pointed at the top, which curves inwards in the manner usual in this genus; it is distinctly stalked: lateral lobes flat, oblong, truncate, with rounded angles, one-third the breadth of the middle lobe. *Crest* consists of an anterior tubercle slightly three-lobed and hollowed out in front, and of a depressed, two-lobed elevation immediately behind it. *Column* unusually short, pale-yellow, with a pair of rounded oblong wings.—*Lindley, in Sert. Orchid.*, 48.

This fine species of Oncidium was imported from Mexico some years ago, by Mr. Barker, in whose collection it flowered in 1841, when it received its present name by Dr. Lindley, who published a notice of it in the Botanical Register of hat year, No. 174 of the miscellaneous matter. It has, since that period, flowered n several other places, first with Mrs. Lawrence, at Ealing Park; also in November ast with J. W. Schroder, Esq., Stratford Green, Essex, where our drawing was made; and latterly, during February and March of the present year, at Chatsworth.

Like the other species of Oncidium, this requires a hot and very damp situation, nd also in its growing state a liberal supply of water; but when it has perfected ts summer's growth, it should be gradually dried off, and have a rest for about hree months in a cool and dry temperature. It may either be placed in a basket of moss and rotten wood, fastened to a block, or grown in pots of turfy peat; but is necessary the drainage be particularly good.

The generic name is derived from *ogkos* a tumour, in allusion to the base the lip.





S Holden del & Lith

Rhododendrum Paxtoni.

RHODODÉNDRON ARBÒREUM PAXTÒNI.

(Mr. Paxton's Tree Rhododendron.)

Class.
DECANDRIA.

Order.
MONOGYNIA.

Natural Order.
ERICACEÆ.

Generic Character.—*Calyx* five-parted. *Corolla* somewhat funnel-shaped or campanulate, rarely rotate or five-parted, limb five-cleft, somewhat bilabiate; upper lip broadest and usually spotted. *Stamens* five to ten, usually exserted, declinate; anthers opening by two terminal pores. *Capsule* five-celled and five-valved; rarely ten-celled and ten-valved, as in *R. arboreum*, with a septicidal dehiscence at the apex. *Placentas* simple, angular. *Seeds* compressed, scobiform, winged.—*Don's Syst.*, see *Mag. Bot.*, 1—101.

Specific Character.—Plant an evergreen tree. *Leaves* oval-lanceolate, stalked, acute, 4—6 inches long, 1½ inch broad; above smooth and dull, with sunken veins, beneath silvery, with smooth, prominent, naked veins. *Flowers* terminal, clustered in a short raceme, proceeding from a bud covered outside with oblong, imbricated brown scales, which gradually become more acute, membranous, and silky as they approach the flowers, among which they are finally mixed, as in *Enkianthus*, in the form of bracts, which are placed singly under each flower, and are spatulate-lanceolate, bowed, cymbiform, white, silky, the length of flowers, and falling off with the flowers. *Pedicels* short, wrinkled, scurfy. *Calyx* short, flattish, five-toothed, pubescent. *Corolla* dark scarlet, fleshy, campanulate at the base, with five prominences, five-lobed, 1¼ inch long, with rounded, wavy, emarginate lobes, of which the lowest are largest; the throat covered with dark purple spots. *Stamens* ten, hypogynous, the length of corolla; filaments white, fleshy, filiform. *Anthers* brown, oblong, apparently inverted, and therefore opening by two pores at the end, not calcarate. *Pollen* pale yellow, globose, clustered in threes.—*Lindley, in Bot. Reg.*, 890.

Paxtoni.—*Leaves* three to four inches long, tomentose, somewhat obtuse, dull green above, ferruginous beneath. *Flowers* not seated immediately above a whorl of large leaves, as those of *R. arboreum*. *Corolla* crimson, very fleshy, campanulate, three inches long, and the same in diameter when expanded; and the throat very indistinctly spotted.

This very magnificent variety of *R. arboreum* is a native of the East Indies, where it was discovered in 1837, by Mr. John Gibson, His Grace the Duke of Devonshire's collector. It grew in elevated situations on the Khoseea Hills, forming a spreading tree of considerable beauty. It produced its splendid flowers for the first time in the greenhouse at Chatsworth, in the spring of 1844, being then a very small plant. This spring it has again flowered, when our drawing was made.

It succeeds best when potted in turfy heath-mould, with good drainage, and is easily propagated by layers or grafting on the stock of *R. ponticum*. It requires the shelter of the greenhouse, and in every other respect exactly the treatment of *R. arboreum*.

The generic name is derived from *rhodon* a rose, and *dendron* a tree; *arboreum* describes its tree-like habit of growth, and the name of this variety is given by Mr. Gibson, the discoverer.

SCÍLLA SIBÍRICA.

(Siberian Squill.)

Class.
HEXANDRIA.

Order.
MONOGYNIA.

Natural Order.
ASPHODELÀCEÆ.

Generic Character.—*Perianth* inferior; *Sepals* six, petaloid, spreading, deciduous. *Stamens* equal; *filaments* filiform, glabrous, inserted at the base of the sepals. *Capsule* somewhat round, three or four-celled, many seeded. *Seeds* globose.

Specific Character.—*Bulb* tunicate; *leaves* four; *scapes* many, striated, upright, decumbent after flowering; *flowers* spikedly racemose, rather distant, nodding; *pedicels* short; *bracteæ* minute, memb
nous, shorter than the pedicels. *Sepals* six, campan
lately rotate, blue. *Stamens* six, shorter than t
sepals, flat, adhering to the sepals by their backs
the base. *Ovary* ovate.

Synonymes.—Scilla amœna, *var.* Sibirica, *Bot. M*
1025. Scilla præcox, *Don's Hort. Cant., old Edit.*

This old but very pretty hardy bulb is very deserving of cultivation. It w
raised from seeds imported from Siberia about the year 1796. It only grows a f
inches high, and is a bulb well suited to plant amongst rock-work, as it flowe
early in March, and its bright blue colour is very striking. If grown in borders
requires a rich sandy soil, and plenty of moisture during the time it is growin
but when at rest it is liable to perish unless the soil be well drained.

SCÍLLA BIFÒLIA.

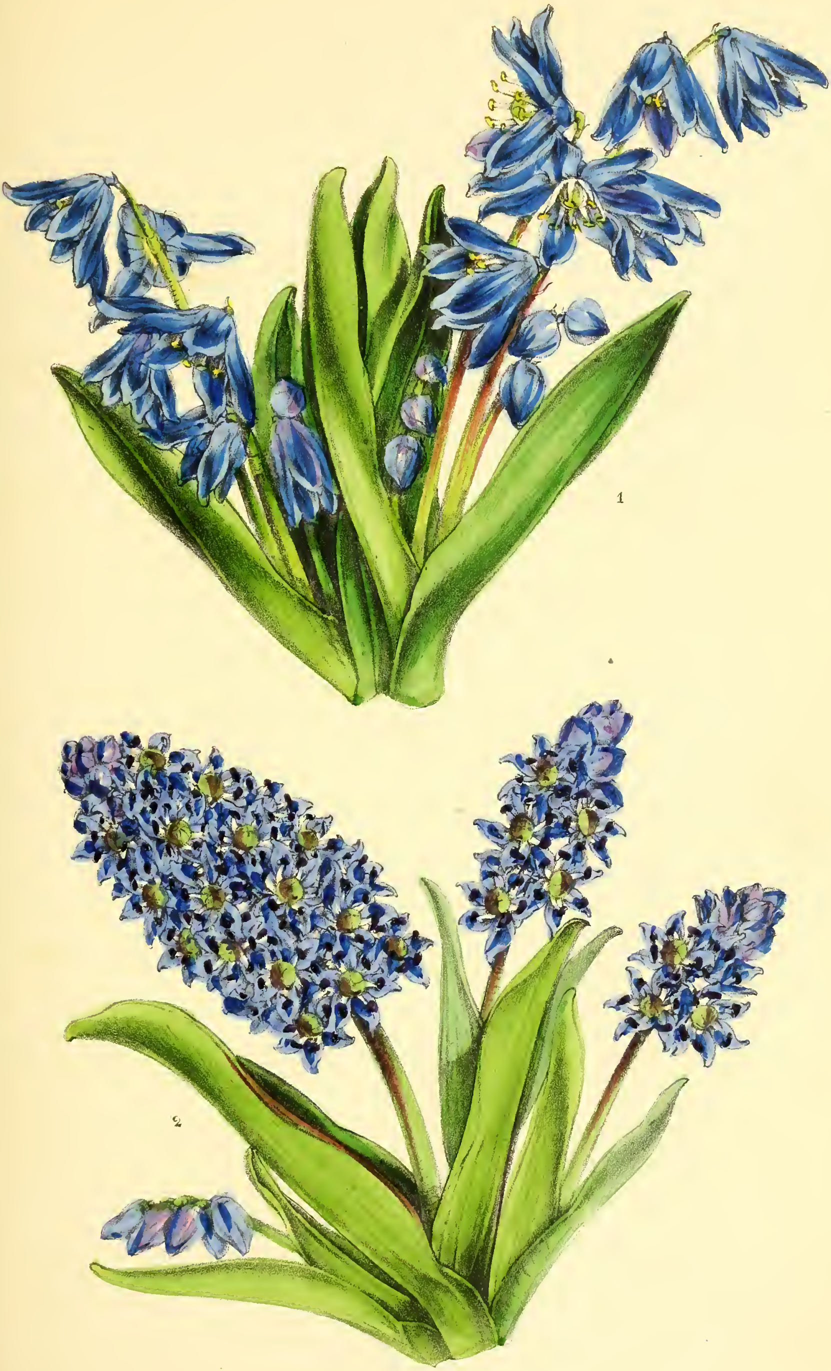
(Two-leaved Squill.)

Generic Character.—See above.

Specific Character.—*Bulb* coated. *Flowers* racemose; *raceme* loose, somewhat corymbiform. *Br*
wanting. *Leaves* lanceolate, linear, mostly two.

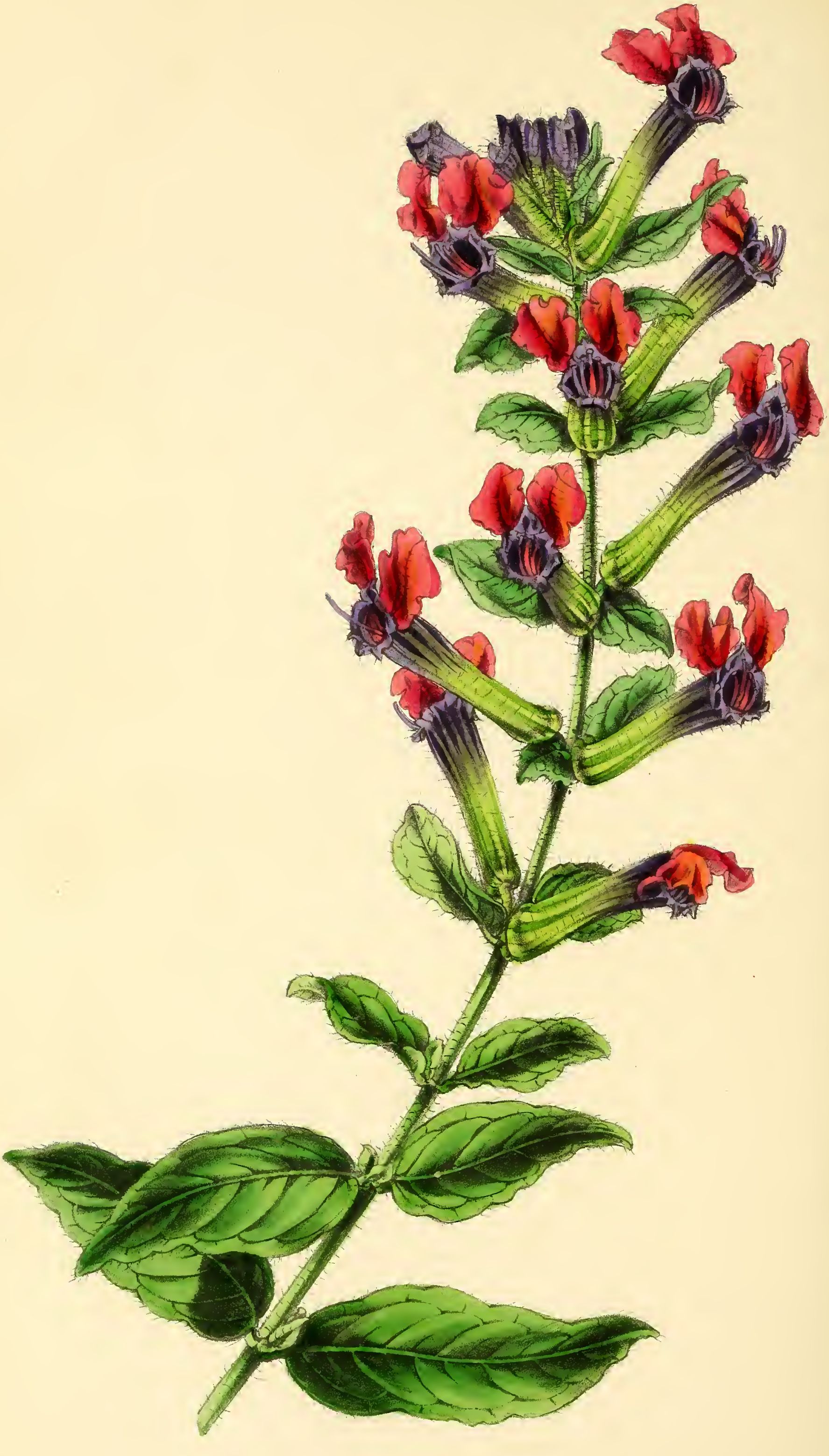
This species, although a native of this country, appears to be remarkably scar
It is very pretty, and well deserves to occupy similar situations to the last.

The generic name is derived from the Arabic name *asgyl.*



S. Holden, del & Lith.

1. Scilla sibirica. 2. Scilla bifolia.



S. Holden, del & lith

Cuphea miniata

CÙPHEA MINIÀTA.

(Vermilion-flowered Cuphea.)

Class.
DODECANDRIA.

Order.
MONOGYNIA.

Natural Order.
LYTHRÀCEÆ.

Generic Character.—*Calyx* tubular, gibbose at the base on the upper side; limb wide, twelve toothed, with six of the teeth erect, and the other six small, or nearly obsolete, rising from the sinuses of the inner teeth. *Petals* six or seven, unequal. *Stamens* eleven to fourteen, rarely six or seven, unequal, inserted in the throat of the calyx. *Gland* under the ovarium thick. *Style* filiform. *Stigma* simple, or rather bifid. *Capsule* membranous, covered by the calyx, one or two-celled, at length cleft by the deplexed placenta as well as the calyx. *Seeds* nearly orbicular, compressed, wingless.

Specific Character.—*Plant* perennial. *Stems* green, erect, herbaceous, growing about two feet high, slender, leafy. *Leaves* opposite, ovate, acuminate, entirely covered with white bristly hairs. *Petioles* very short. *Flower spike* terminal, leafy; *Flowers* solitary, one springing from the axil of each leaf. *Pedicels* very short. *Calyx* persistent, long, cylindrical, tubular, gibbose at the base, broader towards the mouth, oblique; lower part bright yellow green, upper part rich purple. *Petals* two, situated at the upper side of the mouth of the calyx, rounded, intensely brilliant vermilion. *Stamens* enveloped in a purple woolly substance.—*Don.*

This brilliant flowering stove perennial was introduced to the collection of Messrs. Rollisson, of Tooting, from the Continent; but its native country, and by whom originally introduced, we are sorry to add is unknown: it is, however, most likely a native of some part of South America.

It is a plant of very fine growth and easy culture, requiring only to be potted in a mixture of equal parts of light loam, sand, and heath mould, and cuttings root freely in the same kind of soil.

LIQUID MANURES CHEMICALLY APPLIED.

THESE applications of enrichment have become so very fashionable of late, a are so highly extolled, that it is scarcely possible to take up a calendar of week operations where there are not directions for using such and such compoun The subject is really of serious importance, and merits the interference of the phil sophic chemist, to whom it is quite evident that the practice recommended empirical, and in no degree founded upon science.

Let it not be understood that fluid manure is condemned. "To let well alone and to persist in a line of conduct which, "as the rule," is proved to be beneficia is both justifiable and wise; the recommendation is yet so general, so indefinite, and frequently guarded by expressions of caution, that something more precise is r quired of those who profess to look into causes.

Were either the theory or practice confined to the field, or even the kitche garden, we should be unwilling to allude to it, in a work which is primarily devote to floriculture and botany; but we hear and read of the great utility of liquid manur when cautiously applied to Azaleas, Camellias, and members of the herbaceou tenants of the greenhouse, the plant-house, the stove, and to the whole tribe Geraniums and succulents. But then the question, What is liquid manure? occur Some tell us authoritatively, that one of the best forms combines a little shee dung digested in a volume of water, a portion of coal-soot, and a sprinkling of quic lime, the whole to be intimately stirred and blended together, and suffered to su side till the floating liquid becomes entirely clear. Another gardener with whom th writer had once an interview, observed that he found great benefit from the liquor "Potter's guano;" but by far the greater number of practical gardeners give the pre ference to the dark brown drainage from farm-yard manure heaps, more or les diluted. Not many years since, a veteran in the art wrote us that the soft wate which percolated through a body of grass turf, (as, for instance, a sloping meado which drained itself into a clean ditch or rill,) contained all the nutritive matters i solution which any fruit-bearing or ornamental plant could require. The las suggestion is the most wise, and evidently is grounded in wisdom, as we shall no attempt to prove, by adducing a few chemical facts in order to controvert th erroneous opinions entertained by the many.

Plants, differing in their generic and specific characters, laborate and assimilate food, each according to its specific character; therefore all and each require food suitable in all respects accordingly. Nothing can be more true than that the three organic elements—oxygen, hydrogen, carbon, are common to all; and it is equally so that the fourth element, nitrogen—otherwise called azote—enters into the composition of many. It is certain, however, that these four simple elements are susceptible of innumerable modifications, combining in proportions so indefinite as to admit of no mparison with the well-defined proportional alliances of ordinary chemical com- ounds. But independently of purely organic structure, plants endowed with life trosuscept a great number and variety of purely chemical, inorganic salts, and ose chiefly from the soil.

The earths proper—of metallic origin—are also to a certain extent absorbed and eposited in certain specific conditions, varying according to the peculiar tempera- ent of the vegetable subject.

If, then, any liquid manure is found to produce a marked effect upon a plant, at effect must depend chiefly, if not entirely, upon the salts which it holds in a tate of aqueous solution; therefore, in order to understand the mode in which any iven solution can act, we must submit it to correct analytic experiment. Let us ke for the type that compound fluid which results from a portion of the best and urest Bolivian guano; for there we detect nearly all the elements which are raceable in the saline product of organised vegetable life. The soluble salts of uch guano are sulphates of potass, of soda, and of ammonia; muriate or chlorides of oda and ammonia; phosphates of ammonia, &c.; and also a quantity of free urea. e do not pretend to determine the proportions or exact quantities of those salts, he variableness of guano being proverbial; but that they all, or most of them, are resent, in certain proportions, may be considered an admitted general fact. The in- oluble components of good guano consist chiefly of the bone phosphate from fish, educed to a state of division so minute as to defy comparison—of urate of ammonia —of ammonio-phosphate of magnesia — and of some other minor ingredients, mong which we have detected an oxide of iron, and a quantity of organic matter, hat represents, as nearly as may be, the compound which of late has been termed *umus*, since it is destructive by fire, excepting that small portion of siliceous sand hich most samples of guano are found to contain.

If, then, guano be employed as liquid manure, it is plain that every plant must e injured, unless it be constitutionally inclined to imbibe and receive nutriment from he salts contained; and even then the solution should be exceedingly weak, and be sed with discretion.

Potter's guano appears to combine sulphate of ammonia as its chief active in- redient, common salt in smaller proportion, a quantity of powdered chalk (these wo susceptible of mutual attraction), a little vegetable alkali, and much bone-dust. t is not guano, but a very useful dress for the farm,—and the liquid will contain the alts named, with the addition of some free ammonia, owing to the action of the otash upon the sulphate.

If steeped manures—as sheep-dung, horse-droppings, cow's, deer's, or pigeon's- ungs—be used, in a state of fermentation, a peculiar saline matter may be present, hich, in all probability, will be most correctly called *humate* of *ammonia*, a ompound that claims the strictest attention, and which we shall now attempt to escribe.

This salt of ammonia is produced by the attraction or chemical affinity which exists between the alkaline base, *ammonia*, and that vegetable extractive matter th is known to modern chemists by the term of *humic acid*. To prove this assertio and thus to acquire some knowledge of the true theory of manures, we recomme the inquiring reader to proceed in the following manner; but previously he mu admit a few preliminary remarks.

There are three substances which can be taken as types, and used in t form of liquids. The first is the brown fluid that flows to waste from t dung-heaps of the farm: this is the natural product of fermentation, and when fre may contain a portion of free volatile alkali (ammonia, or smelling-salts), but in very short time an union takes place between the ammonia and the humic acid, a therefore the drainage in its ordinary state consists chiefly of water charged wi *humate* of *ammonia*, whence it derives its dark tint.

The second typical substance is the liquid that is obtained by digesting decay wood-earth, leaf-mould, heath or moor-soil, or old spit-dung, in a quantity of war water holding ammonia, potash, or soda (but especially the first) in solution. T result of any of these processes is still a *humate*, whence it will be clear th decayed vegetable—or animal and vegetable matter, mixed as they are in the dun hill, are resolved by slow decay into a hydro-carbonous mass, replete with *humus*.

Keeping in view the foregoing theoretic observations, let an ounce or two each wood-earth, and the other substances named, be placed separately in half-pint glasse and a large tea-cup (about 4 ounces) of scalding water be poured upon the earth & contained in each glass. Stir the whole well two or three times, and when luk warm, suffer the solid matters to subside. The liquors will then be found more less coloured; but upon adding to each a dessert-spoonful of strong solution ammonia, they will become deeply tinted, and in some instances appear dark porter: in other words, they will represent the drainage of the dung mixen, a glas of which should also be ready at hand as a standard of comparison. These prepara tions being made, and all the vessels standing side by side, the operator will b qualified to form some correct idea of the way in which liquid manures act, and the errors which are but too commonly prevalent.

Prepare lime-water by slaking lime, fresh from the kiln, and pouring over i about a pint of cold water to every ounce of the powder; stir the cream of lime s formed, and pour it into a closed glass vessel. When the water has become bright and all the lime has fallen to the bottom of the bottle, and when also the sedimen of all the humous substances has subsided, take a table-spoonful of each, and pu it into a separate wine-glass; do the same with the liquid from the farm-yard. Then beginning with the last, drop in a little of the lime-water, stirring all the while and mark the result. It will soon be seen that nearly all the colour has disappeared and that a quantity of brownish-grey flocks has fallen to the bottom of the vessel Proceed thus with all the solutions, and corresponding effects will be produced, making allowance for the difference which must exist between the substances employed. But so far as *humus* is concerned, so far will the results correspond, and there will be a posit of flocks in all the glasses, with a manifest loss of colour in the floating uids. If, instead of applying lime-water to fluid humates of ammonia, a portion of ch of the solid humous earths be rubbed in a mortar with some cream of lime, no lour will be extracted, even by adding boiling water.

It thus appears that lime exerts a superior affinity upon *humic acid*, fixing it an insoluble humate of lime: it likewise attracts it from every other known kaline base.

The inferences to be drawn from the above experiment are these. All brown ated liquid manures contain *humates* of an alkaline base: these are doubtful, if t dangerous applications, and lime is a remedial antidote.

If a weak, but perfectly clear solution of guano be occasionally employed, great fect has been produced: but then there remains little or no colour visible; there- re it contains no humate, but its virtue resides wholly in the soluble salts above umerated.

Dry manures applied to the soil do not yield brown extracts to the moisture erein; and raw sap is always colourless: hence we conclude that brown liquid anures are in every case to be employed with the utmost circumspection; and that e *humic acid*, so long vaunted as an aliment, is in fact a poison, and constitutes e sterilising agent of peat, bogs, and barren turbaries.

PRACTICAL HINTS ON THE MANAGEMENT OF A FEW SELECT CLIMBING STOVE PLANTS.

(*Continued from page* 89.)

Since our last hints on this subject were committed to paper, we have had an pportunity of conversing with some of the first plant cultivators in the country, and eliciting from several of the principal contributors to the metropolitan exhibitions eir opinions as to the correctness of our views and practice with regard to training, d it is gratifying to know that by those most competent of judging, they were pproved of. We therefore feel additional interest in pressing them upon the tention of our amateur friends, being convinced that if correctly carried out success ill most assuredly crown their wishes.

In our remarks upon *Allamanda cathartica* and *grandiflora* we omitted to state at the blooming branches may be multiplied four-fold by stopping some of the rongest shoots, when they are about fifteen or eighteen inches long. About one ird of the shoot must be removed, and this will induce the plant to produce four teral branches, and hence you will procure four spikes instead of one of bloom. his practice, however, must only be adopted with those plants intended for autumn ooming, as, if carried out in the spring, it will be found difficult to get the plants into bloom before the end of July. With these remarks we shall proceed with a fe observations in extension of our former list.

Dipladenia splendens.—This magnificent plant is one of Messrs. Veitch's acqu sitions, through their collector in Brazil, and was figured several years back in one our former volumes, under the name of *Echites splendens.* It was introduced 1842, and with its gorgeous masses of bright and various tinted rosy pink flowers, certainly not surpassed by any plant in existence. In cultivation, however, as a p plant, it has very frequently been found unruly, growing with great vigour and lux riance, but rarely producing bloom proportionate to the size of the plant, as a frien of ours, and one of the best cultivators in England, although he had remarkably fin specimens in three consecutive seasons, never succeeded in producing a single flowe This we imagine arose from two causes ; first, over-luxuriant growth, afterwar suddenly and unduly checked by exposure to the full sun and air in a cold pit ; an secondly, a want of bottom-heat to the roots, which, so far as we can judge, appea indispensable to the proper management of this plant. We have heard it asserte that the plant will not bloom unless it is properly ripened by exposure to the sun rays towards the close of the growing season ; but so far as our own experien extends, this practice has had a directly opposite effect. In the stove, when plante out, or even in the Orchid-house, and trained to the rafter or trellis, the *Dipladen splendens* flowers with great freedom, and as it is generally in a free growing sta at the time, this, we consider, is a sufficient contradiction to the opinion that th ripening or maturing process is necessary to the production of bloom. On the con trary, we have always found that if the plants are kept growing, with the pots ha plunged in a lively bottom-heat of from 75° to 85°, they will, after the first flush luxuriance has past over, and they come into steady moderate growth, produce bloo almost with as much certainty as any climber in cultivation, and that too not for week or too, but until the dull weather of winter renders it impossible for the bud to unfold themselves.

In commencing the cultivation of *Dipladenia* we will suppose that you hav provided yourself with nice strong young plants in forty-eight or thirty-two sized pot and that they are well stocked with roots in an active state. These during the winte should be kept just growing, but nothing more ; and to insure this, they must be kep rather dry than moist, and at a temperature of from 55° to 60°. In February, dung-pit or frame being ready, take the plants, and having removed some of the ol exhausted soil from the roots, pot them in a soil consisting of turfy peat, leaf-mould and sand, in about equal quantities, to which, at the subsequent potting, one-fourt of fibrous loam may be added. After potting, place the plants in the frame or pit and if the bottom-heat is mild and sweet, plunge the pots a little, but take car that they do not become overheated. If properly managed the plants will be fit t remove into larger pots by the end of March, and by the first of June they shoul be well established in eight or six sized pots. As the shoots progress in growth direct them so as to prevent their becoming entangled, but avoid training them unt e shoots are three or four feet long. The best trellis for this kind of plant, and deed for almost all kinds of creepers, is either a cylindrical or ton-shaped one, oth of which may be readily formed with a few painted stakes and a couple of uarter-inch wire rings of the same dimensions, or a little larger than the mouth of e pot in which the plant is growing. When trellises of this kind are used it is lways advisable to make them directly the plants are potted, for if left until the roots ave made progress, they are very liable to be injured in inserting the stakes. After ey are placed in the blooming-pots, they must be taken to the stove, and there lunged about half the depth of the pot in the tan bed, supplying the roots liberally ith weak manure water, and syringing copiously twice or thrice a day with clean ater. Here they will require shading for a few hours in the middle of the day, as e young leaves are very tender; but it is advisable to inure them to the full sun s quickly as possible, and while you sustain a brisk growing temperature, to supply e house liberally, both night and day, with air. We are great advocates for the beral admission of air at all seasons, of course taking great care to avoid cold raughts. Care must be taken to prevent the plants rooting into the tan, and, if roperly encouraged, they will unfold their charming flowers from July until October.

During the winter, the plants must be kept in a comparatively dormant state, nd pretty dry at the root. In the second season, the plants should be started early February, by cutting the branches very closely in, and by removing the soil from he Dahlia-like roots, and re-potting them into the smallest sized pots they can e got into. Pursue the same treatment as in the preceding season, and the same uccess will crown your labours.

In propagation, the *Dipladenia* may be increased either by cuttings or layers. f by layers, it is best done by laying the plant out at full length, and layering very alternate joint, into forty-eight sized pots, filled with very sandy compost. he house should be kept close and moist, and a gentle bottom-heat will be of use. Vhen propagation by cuttings is attempted, the wood must be pretty well ripened, nd each cutting must be put separately into a small pot, the base being surrounded y sand, and the pots should be plunged in a brisk growing heat, and covered by a and or bell-glass. The autumn is the best time to propagate by cuttings, and if hey are rooted early, and carefully managed through the winter, they make fine looming specimens for the following season.

Planted out in a corner of the tan bed, or over a tank, in a rich compost, and vell drained, this is one of the finest plants in cultivation, growing with great uxuriance and producing flowers with the greatest freedom. No stove ought to e without it. This plant is, unfortunately, a great favourite with the mealy bug, nd is also subject to attack by the red spider and thrips, and as these insects are lifficult to remove from its thick rough leaves, care must be taken to ward off rather han remove the depredators.

Dipladenia crassinoda. About the native country of this plant nothing certain s known at the present time, though, as it is constitutionally more hardy than

D. splendens, we have little doubt but that it comes from some of the more te perate parts of Brazil, and as it came to this country from the Continent under t name of *Echites carassa*, it was in all probability introduced through the hands the collectors to some of the continental nurserymen. In point of beauty it scarcely inferior to *D. splendens*, being deeper in the colour of flower, more profu as a pot plant, of smaller and neater habit, and more easy management.

Some cultivators profess to grow it in a cold pit or greenhouse, where it is sa to luxuriate with great freedom, and we have heard of its growing freely as a gree house climber. So far, however, as our own experience extends, the cool end of t stove, or an intermediate house, appears the most appropriate position, and where grows with the greatest freedom. It is, constitutionally, a delicate plant, and is ve impatient of sudden changes. The slightest check at the roots, such as too mu bottom-heat, or water, or a want of the latter element, will make it cast its leav almost immediately, and once got into an unhealthy state, it will be found anythi but an easy matter to reinstate its health. It is, therefore, a plant which requir to be grown steadily to do well, and consequently, both severe forcing and untime checking must be avoided.

The plant first flowered in this country in the collection of G. W. Norman, Es of Bromley, but was figured for the Botanical periodicals in the following summe by the permission of R. G. Loraine, Esq., from whose garden at Carshalton Surrey, it was first exhibited.

Its management is much the same as *D. splendens*, except that it delights in little more loam in the soil, and a rather lower temperature throughout the who period of its growth. The best time to commence its cultivation is early aft Christmas, when strong, well-rooted plants should be taken and potted into six eight-sized pots, using a compost consisting of two parts turfy sandy loam, one pa turfy sandy peat, one part semi-decomposed leaf-mould with plenty of sand, ar two or three handfuls of charcoal lumps of various sizes. After potting, place t plants in a cool part of the stove, where they will get a gentle bottom-hea and start them gradually; but so soon as they are fairly started, and the days begi to increase in length, endeavour to increase their growth by gradually raising t temperature until the minimum is 60°, and the maximum by fire-heat 70°. Th plant delights in a moist atmosphere, and not too much sunshine; during the time is in free growth, therefore, a thin shade of canvas or woollen netting must be lai over the glass, and if it is continued there until the plant begins to show bloom, will be as well.

In training avoid overdoing the thing, and let the plant run rather wild tha otherwise; indeed, if too closely trained, like many other plants, it will not bloom all. A shield or flat trellis may, if preferred, be used for this plant; but for ou own part we are rather prejudiced in favour of cylindrical trellises, being ver simple and inexpensive, and withal very neat.

D. crassinoda, under good management, will bloom from June until October, o en later, and with from ten to thirty trusses of bloom expanded at the same me, is an object of very considerable interest and attraction. In the second and cceeding seasons the best system of management is to repot the plants early in nuary, removing as much of the old soil as you conveniently can, but not isturbing the roots too much. Repot, using the same soil as before, and as you ut the plant on the new trellis, remove about one-third of the length of each oung shoot. This plant strikes freely by cuttings in a gentle heat at almost any ason, and may also be increased by layers. As a warm conservatory climber lanted out in light rich porous soil, and assisted occasionally in the growing season ith weak clear manure water, it is a plant of first-rate excellence, and a fit mpanion for *D. splendens.*

Gloriosa superba. This is a very high sounding name for an old but very magificent plant, which has been in the country upwards of 150 years; but which, t the present time, is rarely seen, and then too frequently in very indifferent ealth. It belongs to the natural order *Liliaceæ*, and, therefore, is a bulbous-rooted lant, annually making a new growth, and after blooming, dying down to the riginal tuber. The flowers, both in form and marking, are not less singular than ome of the Orchids; and indeed so unlike most of the Liliaceous plants as to be asily mistaken by the common observer for an Orchid. The plant is a native of he East Indies, where it grows in jungles, scrambling over the trees in the tropical orests, and frequently attaining an elevation of from twenty to fifty feet. In this ountry, however, it does not grow so rampantly, though we have had it, when planted ut in a corner of the tan bed, grow the length of a plant stove thirty feet long.

As a pot plant, it is of rather difficult management, refusing all control as to raining during the early part of its growth, and refusing to bloom unless left almost n a state of nature until the first flower buds are of considerable size. Our system f management is to pot the bulbs about the first of February, in a compost onsisting of leaf-mould, sandy peat, turfy loam, and silver sand, in about equal proortions, introducing lumps of charcoal of various sizes to secure the porosity of the oil. We generally put from two to five bulbs, being ruled by their size, in a twelve-ized pot, placing them about three inches below the surface, and covering them with very sandy soil. After this they are plunged in a bark bed with a brisk bottom-eat; but no water is given until the shoots begin to break through the soil; but fter they are fairly started and the shoots grown to some length, manure water is regularly supplied. When the shoots are about four feet long, and before they become unruly, the plants are removed into No. 2 sized pots, using the same compost, with the addition of a little more loam to it. After this potting, the pots are plunged close to the back wall or end of the house, and the shoots are trained perpendicularly about a yard apart, and they are left uncontrolled, except in so far as their being prevented from becoming entangled.

In this state they are left until the first flowers are open, when, a barrel trellis being fitted to the pot, the shoots are carefully taken down and trained, taking every possible care to avoid bruising the stem or main branches. When trained they a again replunged and shaded from bright sunshine until quite recovered from th check, and the leaves have reassumed their wonted position.

After the plants begin to fade they must be gradually dried off, and be ke perfectly dry throughout the winter. The Gloriosas are propagated by seed sow in the spring, and by separation of the bulbs.

REMARKS ON THE CULTURE OF THE GENUS LESCHENAULTIA.

ALL the species of *Leschenaultia* (or *Lechenaultia*, as it was formerly called) a natives of New Holland, and, consequently, greenhouse plants; and as they a somewhat delicate in their growth, and very liable to die without any apparen reason, the following few particulars respecting their treatment may be useful t our readers.

The soil most suitable for their growth is composed of two parts turfy heat mould, one part sandy loam, and one part of leaf-mould and fine sand in equa proportions. If it can be conveniently done, this soil is better mixed together two o three months before being used, and if it was turned once or twice during that period it would be an advantage, as these plants never appear to thrive well in soil newl dug from the pasture. This soil must not by any means be sifted, or even broke fine: it is always to be preferred when lumpy, and with plenty of fibre retained in it

In potting, it is indispensable that abundance of drainage should be afforded without this the plants cannot possibly thrive long; indeed, stagnant water at th roots perhaps destroys more plants of this genus than all other causes put together This stagnation may arise either from bad drainage, soil which has been sifted o broken too fine and deprived of its fibre, or by placing the plants in too large pots.

To avoid injury from any of these causes, our rule is to grow them in small pot whilst the plants are young, to lay abundance of broken crocks, as drainage, at the bottom of each pot, so that the water may have a very free passage through, and t mix with the soil a quantity of broken crocks, pieces of freestone, and charcoal, the two latter about the size of a walnut; by these means the mould never become hard and solid, which to these plants is of great importance.

Another important point in potting, also, must not be lost sight of; if the plant are placed deep in the pots they often die, notwithstanding the utmost care and attention be paid to them. It is therefore always advisable to place the crown o the roots about on a level with the top of the pot, so that when the soil sinks around it, the plant will stand elevated on a slight mound. This effectually prevents injury from any occasional mishap in over-watering which might inadvertently occur.

Having carefully potted them without disturbing the balls, set the pots in a uation where they will stand near the glass, and have plenty of light and air; ese are indispensable requisites.

With respect to watering, if properly potted, they may, during the growing ason, have a pretty liberal supply at the roots, and likewise may be syringed pretty ely; but as the summer declines the quantity of water must be diminished, til, during the winter, no more will be required than just to keep the soil damp in e pots, and the foliage cannot then be kept too dry.

If the plants are a good size, it will be an advantage if they are turned out of ors about the end of July or beginning of August, and allowed to remain out for a onth or six weeks. As their growing season will then be over, this exposure will rden the young wood, and prevent their liability to suffer during the dark days of inter. It is indispensable, however, that they be placed in a partially shaded tuation, not under the drip of trees, but where the mid-day sun will not have full wer upon them. With this one exception of placing out of doors, (which, if the ason be very wet, must not be done,) it is better to keep them all the year in an posed and airy part of the greenhouse.

About the beginning or middle of September, according to the state of the eather, again replace the plants in the greenhouse, and during the whole of the inter months water cautiously, and keep them free from frost, but otherwise keep em as cool and much exposed to light and air as possible.

The *L. biloba* and several other species have a disposition to grow straggling and aked: to prevent this, and make the plants spreading and bushy, carefully stop ll the young shoots when they have grown an inch or two long, they will then reak again; by this practice being judiciously followed, the plants, by the time ey are two feet high, will be as much or more in diameter, and in the blooming eason will be perfect pictures of flowers.

They strike readily from cuttings planted in pots of sand, covered with a glass, nd placed in a moderate heat; they also often ripen seeds, which may be sown arly in spring. If a quantity of young plants be grown every year, and stopped nd treated as above, there will always be a succession of fine flowering specimens r display.

The best kinds are—*L. formosa*, an old, but very favourite species, with red lowers; *L. biloba*, an upright grower, with coarser foliage than the last, and bearing bundance of blue flowers; *L. arcuata*, a new species, with yellow flowers, blotched ith red, and *L. splendens*, a kind with scarlet flowers: these will give a great ariety of colour, and, if judiciously arranged, will make no mean display in the reenhouse in early spring.

CULTURE OF THE HABROTHAMNUS FASCICULATUS AND CORYMBOSUS.

THESE are elegant greenhouse plants, bearing panicles of flowers in profusion they are scarce in collections at present, but their great beauty entitles them to first rank amongst cultivated plants.

They are not difficult to cultivate if the following particulars be paid attentio to; otherwise they are very shy of flowering. Their general habits are not muc unlike those of *Brugmansia*, but their foliage is smaller and hairy, and their mod of flowering different.

In point of propagation, they strike freely from cuttings, which may be put in a any time from March to August, but those planted in spring are the most successfu Put three or four round the rim of a 60-sized pot of very light sandy soil, or shar sand, either will equally answer; plunge these pots into a brisk bottom-heat, eithe in a cucumber-frame or a propagating.house, and shade them for a few days from the rays of the sun.

When struck, pot them off in small pots filled with light rich soil, composed o one part very sandy loam, one part heath mould, one part very rotten leaf-mould and one part rotten dung; let these be all well beat and mixed together, but by n means be sifted, as this would separate the fibre, and allow of the soil becoming hard and close, which is always a disadvantage. In this soil they will grow with great rapidity, which should be as much as possible encouraged by a little heat and moist atmosphere.

As they advance in growth and become good sized plants, gradually expose them to a cooler atmosphere; and in all future pottings use a mixture of two parts sandy loam, one part heath-mould, and one part leaf-mould, leaving out the dung altogether as this would tend to so encourage the growth, that few flowers would, at any time be produced.

In potting give plenty of room in the pots, and lay a considerable quantity of drainage in the bottom, for although these are plants which, in their growing season, require abundance of water, yet they soon perish if there is any stagnation of it about their roots. No stated times can be given for the operation of potting, but this must always be done when the roots have spread through the soil and begin to form a mat against the sides of the pot.

If favourably grown, the young plants will, by the end of the summer, have become three feet, or more, high, and proportionably bushy and strong; then begin gradually to diminish the quantity of water, and on the approach of winter set them in a cool, dry, and airy place in the greenhouse, where they will be quite secure from frost, and administer very little water until the return of spring. In March use the knife pretty freely in cutting back the branches; this will make the plants andsome and bushy, and will likewise assist their flowering; then take off the old oil for an inch or two deep, and give a good top-dressing of new soil, as recommended for potting.

After being potted place the plants in a cool part of the stove, and begin gra-ually to increase the proportion of water at their roots, and occasionally syringe them over-head. As they advance in growth remove them to a warmer part of the tove, where they will enjoy a damp and close atmosphere, and if they are kept well upplied with water at the roots, and syringed over-head in sunny days, they will oon show signs of flowering, and exhibit large leafy panicles from eighteen inches o two feet in length of shining waxy flowers, of a deep orange crimson colour; which will be more than a recompense for all the attention they required.

When out of bloom, which will be about the end of May or beginning of June, urn the plants out of their pots, and plant them, without breaking their balls, into he open borders, into a light rich soil, and during the summer allow them to have very encouragement to make a fine growth, by giving plenty of water if the weather hould prove dry, and occasionally a little liquid manure. In this situation they may stand until the second week of September.

In September carefully take the plants again out of the ground, pot them, with as little damage to the roots as possible; place them in a close pit or the stove for a ew days, until they have recovered from being shifted; then remove them to the greenhouse; gradually diminish the quantity of water, and treat them exactly as recommended before.

These plants are well suited either for a greenhouse or conservatory, and will no doubt, in a few years, form splendid objects on our conservative walls, for which they are well adapted.

HINTS ON THE FLOWERING OF PLANTS.

No one can have walked abroad during the past fortnight or three weeks, where flowering trees and shrubs, whose blossoms in any measure approach those of a conspicuous character, have come within the field of observation, without having been struck by the overwhelming quantity of bloom that every tree and bush, to the extent of branch and branchlet of each, is destined, however briefly, to support.

In nature's and the cultivated garden, such a state of things have equally prevailed and thrust themselves upon our attention. Individual and assemblages of trees and shrubs, those with showy and those with inconspicuous blossoms, such as are grown for the value of their produce, as well as those maintained for ornament, have all exhibited, or indicate they will exhibit, similar features. There is enough in this, at least, to convince us that the influences which have wrought those effects which none can fail to admire, have not been partial, but universal in thei operation. We may briefly glance at what those influences are.

Ordinary ideas respecting the wonderful development of blossom this seaso would lead us to attribute the display to last year's scarcity of bloom, but in doing so we need scarcely observe, we commit error. That of which we write is undoubtedl chargeable to the account of last year, or rather to its extraordinary weather, and i too indisputable to require further mentioning. It might be instructive to inquir into and enlarge upon the processes, as they relate to the subject in question, actin through a summer like the last, in opposition to those in force during one the ver reverse in character; but it would involve too serious an amount of theoretica detail for our present purpose. The object now in view is to suggest, very briefly an idea or two, founded on recent experience, in connection with the subjec professedly written upon.

Those who only give their attention, to a very limited extent, to gardenin matters, cannot but have observed that a tropical sun of the power and continuanc of that of part of last year, or one in degree similar, is always succeeded b comparatively like effects, to those which the present spring has produced Herein is hidden that secret we will cursorily notice. The weather in that period of last year which is usually regarded, and generally is, the growing season, happened to be such as induced most plants, whether those which had an unlimited supply of nutriment at command, or those less favourably situated, to assimilate such food and dispose of it in the desired manner; and hence this spring's beauty of ou gardens and orchards, and the increased delight the lanes and fields afford.

Perhaps it may here occur to our constant readers that we have said as much, and conveyed more on this subject formerly, in that part of an article on conservative walls which relates to the formation of their borders, and in other places (see pages 181, and 235, of volume xii). Similar ideas, doubtless, are traceable in each of the places to which allusion is made, but those ideas are of a nature which permits their repetition without a diminution in value taking place; and this is our excuse for recurring to them.

The time, too, at which they are reproduced is, it will not be disputed, appropriate. At the date upon which they will meet the public gaze, the time and attention of the gardening world will be occupied in storing their flower-gardens and grounds with plants which are to produce a display of bloom and beauty for the season.

In conclusion, we would remind all those engaged in the operation of turning plants into the open ground, that the common error committed in doing so predominates on the side of providing them with too much food rather than on that of arranging for too little. For the minor mistake, it is now getting well known there are simple and readily-applied correctives; but for the greater evils remedies are scarce, and those few are difficult of application except at the proper period.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIODICALS FOR MAY, &c.

Akebia quinata. According to M. Decaisne, one of the species of this genus is commonly ultivated in the gardens of Japan, where it is called *Fagi-Kadsura-Akebi*, whence its scientific ame. Professor Zuccarini has stated this to be the very Japanese plant described by Thunberg. Ir. Fortune, who sent it to this country, found it growing on the lower sides of the hills, in hedges, here it was climbing on other trees, and hanging down in graceful festoons from the ends of their ranches. The colour of the flowers in China is of a dark brown, not unlike the *Magnolia fuscata*, nd they are very sweet scented. In the garden of the Horticultural Society the flowers are much ghter in colour, and nearly scentless. There is every reason to suppose it will succeed well when rown on trellis in the open air.—*Bot. Reg.*, 28.

Bolbophyllum Lobbii. How fine a plant of its kind this is, may be surmised by its having een taken for a *Cœlogyne.* The flowers are yellow, shaded with cinnamon, spotted with light rown, and speckled outside with brown purple. They are full four inches across ; are superior to ny known species of the genus for beauty. Mr. Thomas Lobb sent it from Java to Messrs. eitch, who have it for sale.—*Bot. Reg.*, 29, *descrip.*

Brassia brachiata. This beautiful Epiphyte was originally defined from a dried specimen, ollected near the *Hacienda de la Laguna*, in Guatemala, by Mr. Hartweg. Like *B. verrucosa*, this pecies has the singular peculiarity of bearing upon its lip numerous flat warts, to which the green olour of that part is exclusively confined. This fine plant is best grown elevated on a pot well rained, and in a mixture of the fibre out of rough peat and half-decayed leaves, in equal proporions. When the season's growth is completed, it should be allowed a season of rest, which is best ttained by withholding moisture, first from the atmosphere, and afterwards from the roots, and by educing the temperature of the house to 58° or 60° by fire heat.—*Bot. Reg.*, 29.

Calceolaria amplexicaulis. A handsome and ornamental yellow-flowering *Calceolaria*, though, xcept in foliage, little different from many other forms of that genus. It is a native of Peru and Colombia. Humboldt met with it upon the banks of the San Pedro, between Chillo and Conocoto, at an elevation of from seven to eight thousand feet above the level of the sea ; Mr. William Lobb found it at Muña, whence he forwarded seeds to Mr. Veitch, of Exeter ; and Professor Jameson and Hartweg sent it from Quito.—*Bot. Mag.*, 4300.

Catasetum serratum. Nearly allied to *C. maculatum*, from which it differs from the sides of the lip not curving inwards, in the shortness of the columnal cirrhi, and in the emarginate apex of the lip. The flowers are nearly of the same size, but not spotted ; they are pale green, with the convexity of the lip yellow. Sent from Panama to Messrs. Veitch, by Mr. Lobb.—*Bot. Reg.*, 24, *descrip.*

Cerasus japonica plena. This differs in no respect from the well-known double dwarf Chinese Cherry (or Plum), except in having perfectly white and very double flowers. A hardy shrub, growing freely in any good sandy loam, and increased by budding on a Plum stock. Introduced by Mr. Fortune from China, in 1846.—*Hort. Jour.*, vol. ii., p. 158.

Dendrobium Veitchianum. We are not sure that this will not prove a rival to the best of the East Indian Orchids. It is a most beautiful plant, with upright racemes of large mossy flowers, nearly two inches in diameter, and a fine stiff habit. Its sepals are a clear dull yellow, the petals pure white, the lip deep green bordered with white, and richly marked with crimson veins. A native of Java, discovered by Mr. Lobb.—*Bot. Reg.*, 25, *descrip.*

Echites Franciscea. A fine fragrant hothouse climber, of considerable beauty, the introduction of which was effected by His Grace the late Duke of Northumberland. It appears to have been found in the Brazilian desert, near the river San Francisco, whence it takes its name. —*Bot. Reg.*, 24.

Forsythia viridissima. This new plant, noticed page 67 of the present volume, has lately flowered in the Horticultural Garden, and proves to be a plant of extraordinary beauty. Its branches are loaded with deep golden-yellow blossoms, which appear before the leaves are fully unfolded.—*Hort. Jour.*,vol. ii., p. 157.

Ipomæa muricata. A beautiful little species of *Ipomœa,* not very aptly named *muricata* by its first describer. Tubers were sent by Mr. Purdie from open grassy mountains of the Nivada de Santa Martha, New Grenada.—*Bot. Mag.*, 4301.

Jacquemontia canescens. A perennial twining plant, with the stems and leaves closely covered with a short down, which is brown and white. The flowers grow in close cymes of nine to eleven each, on stalks somewhat shorter than the leaves. They are of a clear bright blue, and very handsome. It requires the shelter of a greenhouse, and strikes readily from cuttings.—*Bot. Reg.*, 27.

Lælia cinnabarina. The Orchidaceous house of the Royal Gardens owes the possession o this plant to the Messrs. Loddiges, who received it from Brazil. It appears to have been first introduced, however, from that country by Mr. Young, of Epsom, in 1836. The flowers are produced at the extremity of a raceme, usually five or six in number, of a yellow scarlet.—*Bot. Mag.*, 4302.

Macromeria exserta. This is a fine half-hardy perennial, growing from two to three feet high, if potted in a mixture of sandy loam and fibry peat in equal parts. It is increased by seeds, and bears abundance of yellow flowers, from August to October, if kept in the greenhouse. —*Bot. Reg.*, 26.

Marsdenia maculata. This has been long cultivated in the stove of the Royal Gardens of Kew as a new *Asclepiadeous* plant, which had been sent by the late Mr. Lockhart of Trinidad. It is a great climber, and flowers readily in June : the flowers are of a dark purple colour, and the foliage is large, and spotted with pale yellow, like those of *Aucuba japonica ;* but with spots more regular, more equidistant, and more confluent.—*Bot. Mag.*, 4299.

Ophrys fuciflora. Considerable confusion exists among the curious little plants which constitute the genus Ophrys. *O. fuciflora* is identical with *O. Arachnites* of *Eng. Bot., supp.*, 2596. —*Bot. Reg.*, 25.

Phalænopsis amabilis. This noble Orchidaceous plant, though introduced to our stoves ten years ago, by Mr. Cuming from Manilla, is still perhaps the choicest and most highly prized of the family. Indeed there is not a more chaste or lovely flower among all the *Orchideæ* ; and it has the merit of continuing a long time in blossom. The species was first detected at Amboynia, by Rumphius. In Java, and probably in the Malayan islands generally, it seems abundant. It grows freely, attached to a piece of wood, together with a little moss, suspended from a rafter of the stove.—*Bot. Mag.*, 4297.

Renanthera matutina. A splendid Epiphyte sent from Java by Mr. Thomas Lobb, to Messrs. Veitch. It produces a large branching panicle, each of whose arms is from six to nine inches long, and carries from six to twelve flowers.—*Bot. Reg.*, 26, *descrip.*

Ruellia Purdieana. A desirable Acanthaceous plant for cultivation in the stove. It strikes freely from cuttings, blossoming at an early period, and at different seasons of the year, and the flowers are a full, deep crimson-lilac.—*Bot. Mag.*, 4298.

Saccolabium miniatum. A Java Orchid, imported by Messrs. Veitch, and flowered both by Mr. Rucker and Mr. C. B. Warner. It is not to be traced among Blume's species, and seems new. Its flowers, of a gay vermilion or rich apricot colour, although somewhat small, have an extremely lively effect ; they grow in upright racemes, about ten together.—*Bot. Reg.*, 26.

Spiræa pubescens. This is a small grey shrub, with little hemispherical umbels of white, small flowers, having a slight fragrance. In habit, it may be compared to a weak *Spiræa opulifolia.* Its leaves, when full grown, are about an inch-and-a-half long. The plant appears to be nearly hardy ; grows about two feet high, and flowers freely in any good garden soil. We may expect this to prove an ornamental shrub for planting in sheltered situations and warm districts.—*Hort. Jour.*, vol. ii., 157.

Telipogon obovatus. A curious plant sent from Peru, by Mr. Lobb, to Messrs. Veitch, by whom it has been sold. It has not yet flowered, but will prove a very nice plant when it does blossom. Its flower-stem is six inches high ; the flowers are bright yellow, an inch-and-three-quarters in diameter.—*Bot. Reg*, 27, *descrip.*

PLANTS, NEW OR INTERESTING, IN FLOWER IN THE PRINCIPAL SUBURBAN NURSERIES AND GARDENS.

Azalea, *var.* **Fielder's white.** In Mrs. Lawrence's collection at Ealing, this fine variety is ow exhibiting its large and very good shaped flowers, of a pure white, spotted with greenish spots n the upper petals. The excellence of the flowers will gain this variety a good reputation.

Achimenes cupreata. A curious-looking plant, having foliage much in appearance of *A. picta,* ut without the variegated character ; with small, but very bright, scarlet flowers, slightly notched t the edges, and yellow in the throat. Its habit is that of a creeper, hanging over the side of the ot about two feet. What may be its value as to luxuriance of flowers, time alone can inform us, he specimen here noticed having but one flower expanded. It is from the collection of His Grace he Duke of Northumberland, Sion House.

Brugmansia sanguinea. This fine old plant has been for some time past flowering in the nost luxuriant manner in the conservatory of the Horticultural Society, Chiswick. It is well nown for its long, large, red and yellow, trumpet-shaped flowers, hanging from a mass of coarse oliage, which, in a small plant, has not much attraction ; but in the specimen here noticed, which s large, being fourteen or fifteen feet high, and nine or ten feet in its widest part, and having such profusion of flowers upon it, the plant is exceedingly attractive.

Davesia, spe. A handsome species has lately been flowering in the Nursery of Mr. Glen-inning, at Chiswick. It has a tortuous stem, throwing out at every turn a leaf or flat spine, ery sharp-pointed, at the axils of which the flowers are produced in twos or threes, small, but a ery rich orange-yellow, having a dark spot of chocolate in the centre. It is a very handsome ddition to the species, and now flowering for the first time in this country.

Dendrobium spe. nov. At the recent Horticultural Fete, Messrs. Veitch of Exeter exhibited hree new species of the Dendrobium. The first, in the bulb, is much like *D. Paxtoni,* as well as in he flower, having racemes holding upwards of ten yellow flowers, with a small spot of deep rimson in the throat of the labellum, which is of a paler yellow, and beautifully fringed at the dges. The second, in flower, is allied to *D. aggregatum,* only smaller, yellow, and the labellum eing fringed ; the bulbs about four inches long, very thick and tapering to each end The third species has bulbs about eighteen inches long, and half an inch in diameter, round and smooth, producing its flowers in pairs, at every joint up the stem : the flowers, though small, are very pretty, being of a delicate rose-colour, richly improved by a large blotch of bright yellow in the labellum. The whole of these specimens are without foliage.

Erica Imperialis. This handsome species has lately developed its fine flowers in the nursery of Messrs. Rollisson, Tooting. It is rather rare in our gardens, though introduced many years since, and, taking the size of its flowers, which are two inches long, narrow, pale pink from the calyx, shading to near the division of the tube, when it becomes a bright green, these radiating at right angles with the stem at the top of each shoot in six, eight or more flowers, with foliage good and very handsome, makes the plant one of very considerable merit, and well deserving its name.

Gardenia Fortuni. A very handsome plant, having flowers as large and double as the White Camellia, richly scented, and a pure white, well relieved by a mass of rich, dark-green, glossy foliage. This species was introduced by Mr. Fortune to the Horticultural Society's Gardens, Chiswick, where it has recently been in flower.

Gompholobium spe nov. A very handsome and superior species is now flowering with Mr. Ayres, gardener to Jas. Cook, Esq., Brooklands, Blackheath Park, and, as compared with *G. polymorphum,* exhibits a decided superiority, whether from its luxuriant habit, or the brilliant crimson, and profusion of its flower. This species will no doubt supersede all the varieties of *G. polymorphum* in cultivation.

Houletia spe. A curious rather than handsome plant of this genus has been flowering from an imported bulb at Messrs. Rollisson's, Tooting. It is very like *H. Brocklehurstiana* in habit as well as the general appearance of its flowers, being about the same size, growing erect, of a dingy brownish chocolate (without the spotting) and a little relieved with streaks of pale yello in the column. The flowers have a strong pungent odour, much like that of cloves.

HOYA CAMPANULATA. A pretty, though, from the absence of colour, not a very interestin species, has been exhibited at Chiswick by Messrs. Veitch, Exeter. It has pale yellowish-gree flowers, beautifully formed, like a number of inverted cups suspended among its rich gree foliage, and having a delicious lemon odour, will render its want of colour less noticed, and mak it a desirable addition to the stove climbers.

ODONTOGLOSSUM CUSPIDATUM. Messrs. Rollisson have recently flowered this species: it ha long, pointed sepals and petals, of a greenish ground, striped and spotted with brown. The bul is small and flat, with foliage about six inches long, and an inch broad, of a bluish-gree colour.

ONCIDIUM CONCOLOR. In Messrs. Veitch's collection, we noticed a handsome plant of th species flowering most luxuriantly: it is singularly different from all the species of *Oncidium*, b having an uniform colour (bright yellow) in the whole flower, labellum, sepals and petals. Thi species will always attract notice when seen in good flower.

RHODODENDRON, *var.* At this season, numerous fine hybrid varieties of this noble genus ar developing their flowers in the most luxuriant profusion, the finer varieties of which we wi proceed to notice. *R. metropolitana* is now flowering splendidly with Mr. Edmunds, gardener t His Grace the Duke of Devonshire, Chiswick: it was raised some years ago by Mr. Ronald Nurseryman, Brentford. The specimen has immensely large trusses of bloom, one of which hel upwards of twenty-six flowers, each flower averaging four inches and a half in diameter; the inflo rescence is of a deep rose-colour, beautifully spotted in the throat. The habit of the plant is bold of a dark green on the upper side, and slightly bronzed beneath. At the nursery of Messrs Knight and Perry are several handsome varieties in flower, including those splendid specimen of the true *R. arboreum*, which has been flowering for some time in a most luxuriant manner and receiving the admiration of every beholder. Then they have *R. fastuosum flore-pleno*, a hand some lilac flower, very large, and with good substance of petal, the truss holding upwards of twent flowers, each flower being about three inches and a half in diameter. This variety is remarkabl for a petal-like development of the stamens; it is perfectly hardy, and one of the handsomest of it class. Another variety worthy of notice, possesses a changeable feature in the colour of it flowers; first, the bud—which is a brilliant crimson—when the flower opens it is a rosy carmine and as it ages becomes paler and paler, until near white; so that a good specimen, in flower has the appearance of being composed of different varieties grafted on one stem. We notice another hybrid, raised between the Azalea and Rhododendron, having the foliage of th former, and flowers—a rich pink—of the latter, the whole of the petals being spotted with dar colour. Mr. Gaines, Nurseryman, Battersea, has a pretty hybrid, *R. Jenny Lind*. It is small, o a bluish colour, and profusely spotted on the upper petals. The foliage is very neat. We are no aware whether it is hardy.

TROPÆOLUM AZUREUM A well-grown specimen, covered with its pretty, bluish flowers, ha been exhibited by Mr. Green, gardener to Sir E. Antrobus, Cheam. This species, now introduced some years ago, has been almost forgotten, whether from a difficulty of culture or what we know not: however, this specimen cannot fail to make the plant an object worthy the attention of the possessors to cultivate it in a similar manner.

VANDA CRISTATA. This beautiful and singular-looking plant has been flowering finely in several collections this season, but in none was it so freely in bloom as in the collection of Mr. Schroeder of Stratford Green, where it has thrown out upwards of sixteen of its beautifully striped flowers, forming a very attractive species.

VIBURNUM SPE. NOV. Two species of Viburnum have lately been flowering in the gardens of the Horticultural Society, Chiswick. They are of the purest white, one of them is capitate, with trusses as large as the Hydrangea; individual flowers about an inch across. The other produces a greater number of trusses along the stem, smaller, about three inches in diameter, while the individual flower is semi-double, about half an inch across. The plants are shrubby, and we believe, hardy. They were introduced by Mr. Fortune, from China.

WEIGELIA ROSEA. This charming plant cannot be noticed too highly, having several superior oints to recommend it ; first, its being perfectly hardy, having stood out the whole of last winter the Horticultural Society's Garden, Chiswick, and is now growing luxuriantly ; secondly, the olour of its flower—varying from a delicate rose, almost white, gradually increasing in depth to a ep pink, when the flower dies. These qualities, added to its profusion of bloom, we feel assured its becoming a general favourite with every one. It is now richly in flower in the conservatory Chiswick, and was introduced there by Mr. Fortune, from China.

OPERATIONS FOR JUNE.

In plant-houses this month's proceedings are principally routine. All the appliances of rowth must be called into action and maintained where growing plants exist, and the greatest iligence exercised in the suppression of insects. Plants whose growth has ceased should now e placed to rest in cool situations, or in the open air, according to the kinds.

Choice Orchids in flower, as well as any other esteemed plants in a like condition, may be emoved to where their beauties will be prolonged and more agreeably enjoyed.

Indian Azaleas, and any other greenhouse plants of like habit, now the blooming season is ver, may be placed in a warm and moist atmosphere, and occasionally watered with very diluted quid manure, &c., to excite a robust growth.

Plants having very fine fibrous roots, as the Heaths (*Erica*), &c., must now be diligently ttended to in respect of water. A glazed cold pit is perhaps one of the best erections for the ccommodation of the genus *Erica*, and other plants with similar habits, during the summer, s they can be left perfectly exposed, and covered at pleasure.

Pelargoniums which are not to be turned in the borders, but are intended for specimen-plants nother season, give abundance of light and air, and by no means allow any plants to crowd each ther, at this time of the year especially.

Propagation of stove and greenhouse plants by cuttings, and other means ; gathering and owing choice seeds, hybridising, and a thousand other operations too numerous to mention, now ll crowd upon the attention of the cultivator, and demand immediate and persevering exertions.

One great feature in out-of-door culture in the flower department for the present month, is he continuation of turning out plants into the prepared beds and borders. A great deal of this vork of course has already been done ; but this late season it is not to be expected ; but the eaviest part yet remains to be done.

The first and most essential point to be regarded in removing plants from pots into beds, &c., s to ensure that their balls, or any quantity of earth adhering to their roots, is wholly and horoughly moist. We have formerly directed attention to this particular, and experience warrants ur again noticing it.

Every plant requiring it, should be amply secured before the operation of inserting it in the oil is considered complete. In the case of dahlias and plants of that description, this is especially ecessary ; and securing the trailing branches of dwarf and spreading kinds, is scarcely less mportant. Hooked pegs are the most readily obtained, and are perhaps the most suitable of nything for fastening spreading plants, and stakes of proper thickness and height must be esorted to, where taller plants have to be supported. It is not an unusual practice when planting ut dahlias and other tall growing kinds, whilst the plants are very small, to insert along with ach, a stake which will be sufficient to support it when full grown. Under certain circumstances he proceeding of which we write is justifiable, and indeed we have recommended its adoption ; ut generally speaking, even for the sake of appearance, it is far preferable to employ that kind f support the present necessities of the plants demand, and change them again as they require it hereafter. To dahlias and other plants whose roots are liable to receive injury from stakes being forced into the soil near them, it would be an advantage if the stake first inserted was of the same thickness as the one intended to support the full-sized plant, and then the one could be replaced by the other without any damage happening to the roots.

Duplicate stove and greenhouse plants, which are not required for the houses, should now b turned out without delay, and some of both classes may be plunged in their pots, or turne into the open borders for the season. The progress they make, and the extent to which they ar benefited by such treatment, is great. Good judgment must of course guide the selection of kinds s treated, and all due care given as to the time and manner of restoring them to proper shelter agai

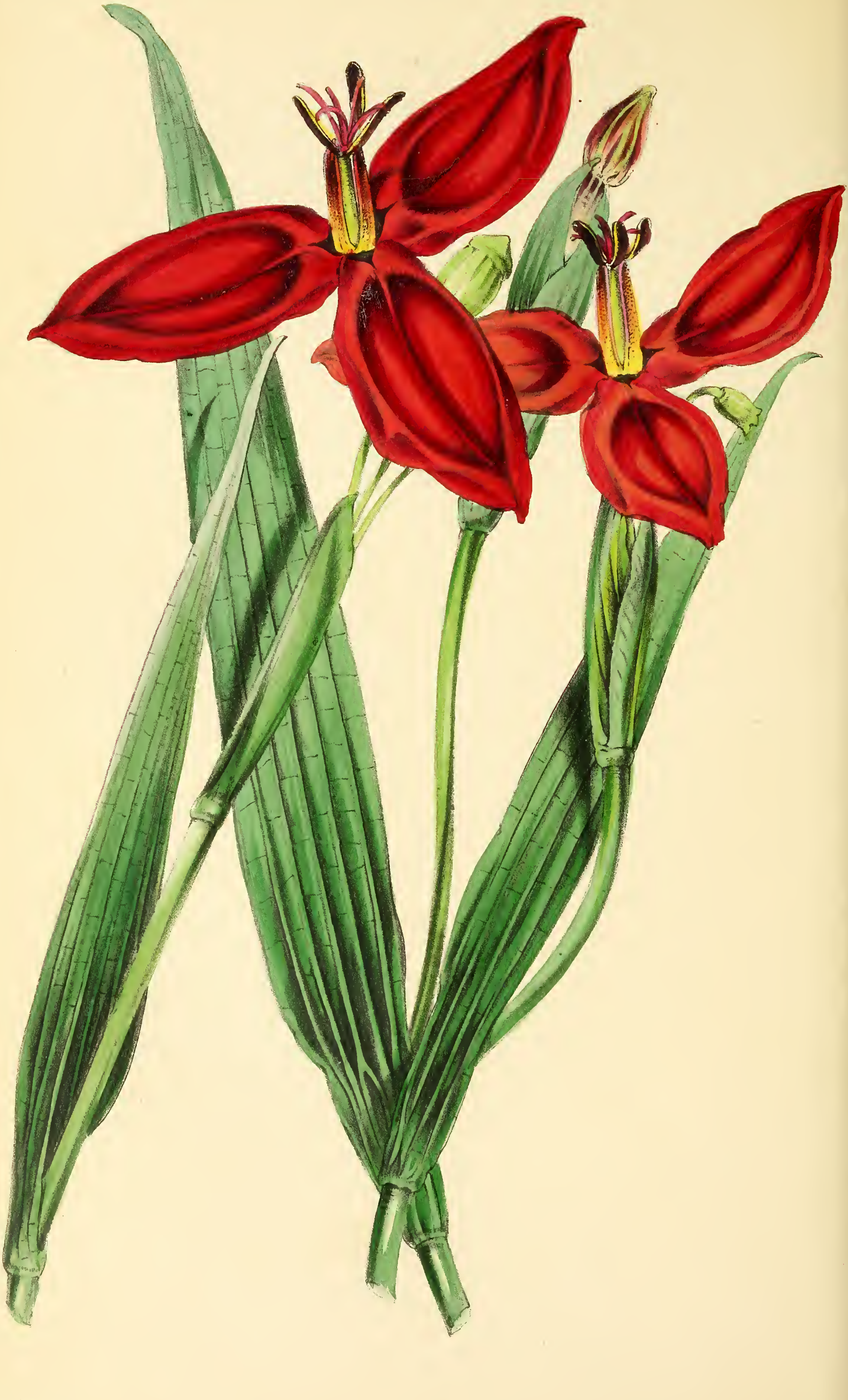
Annuals may yet be transplanted, and seeds of many sown to produce late flowers. Full matured choice bulbs ought not to be allowed to remain in the ground, and no bulbous or othe plants be permitted to ripen seeds, unless it be particularly desirable to obtain such. Of cours annuals are excluded from this remark.

Plant pink pipings and propagate pansies or any other plants, which point out this as the prope period for their increase. Thinning the buds of pinks, and tying carnations to neat stakes, ar amongst the operations now necessary.

The prevailing weather will determine how far in the open air watering-pots should be i requisition, and the condition of plants whether an occasional supply of weak liquid manure migh prove advantageous.

General out-of-doors cleaning; miscellaneous business, much of which will not now admit of th least neglect; securing and training climbers; tying plants generally, for growth is at this time ver rapid; thinning annuals, and watching after depredators of every kind, are among the many matter which must now be attended to.

LIBRARY
JUL [illegible]
U. S. PATENT OFFICE



S. Holden, del & Lith.

Rigidella orthantha.

RIGIDÉLLA ORTHÁNTHA.

(Upright-flowered Stiff-Stalk.)

Class.
MONADELPHIA.

Order.
TRIANDRIA.

Natural Order.
IRIDÀCEÆ.

Generic Character.—*Perianth* three-leaved; *leaves* imbricated at the base, convolute, bound together below the middle; limb concave, revolute, spirally twisted after expansion. *Stamens* three, joined together in an exserted tube. *Anthers* linear, erect, free. *Stigmas* three, bipartite, appendiculate at the back, opposite the anthers; lobes linear, papillose at the apex. *Capsule* papyraceous, apex three-valved, many-seeded. *Seeds* subglobose, dotted. *Raphe* and *chalaza* conspicuous.—*Mag. Bot.*, vol. vii., t. 247.

Specific Character.—*Plant* a bulbous perennial, growing about eighteen inches high. *Stem* herbaceous. *Leaves* lanceolate, plaited, sheathing, pale green. *Bracts* in conjunction, sheath-like. *Flowers* terminal, fasciculate, nodding. *Perianth* three-leaved, deep vivid scarlet, and a triangular black spot at the base of each leaf; somewhat concave, divided to the base. *Anthers* linear, dark brown. *Stigmas* deep pink. Fruit triangular.

This new and brilliant-flowering bulbous plant was blooming in the stove of Messrs. Knight and Perry, Nurserymen, King's Road, Chelsea, last October, when our drawing was made.

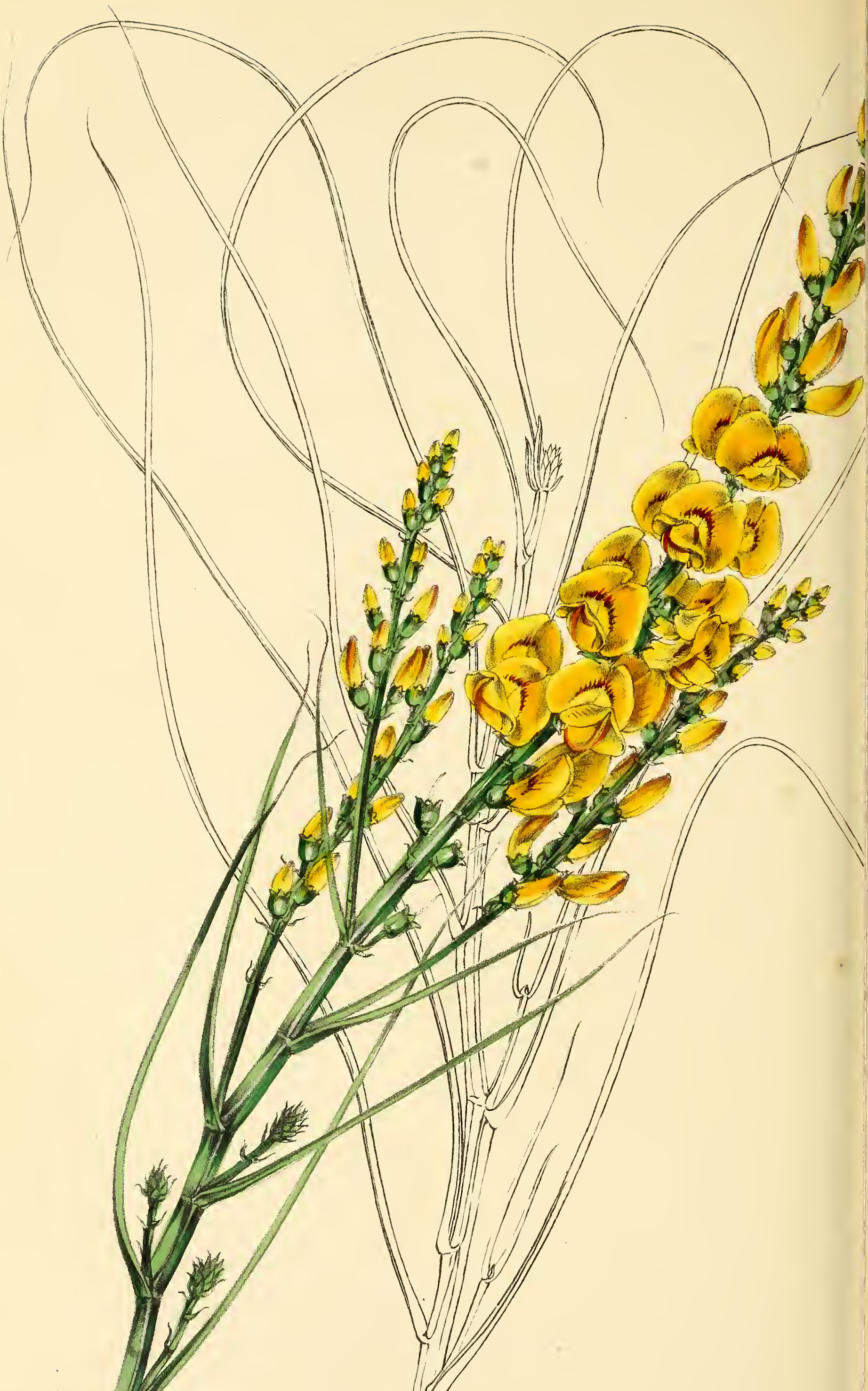
The rich and deep scarlet of the flowers, contrasted with the delicate green of the foliage, renders it a very conspicuous object, surpassing in several respects the *R. flammea* figured *Mag. Bot.*, v. 7, t. 247, to which in its general aspect it bears some resemblance. The flowers, however, of this species, although nodding, are not pendulous, neither does the limb assume that reflexed form which, in the *R. flammea*, is so distinguishing a character. The flowers, like those of the last mentioned species, are developed in a very short space of time, and decline with nearly the same rapidity, so that the duration of each is very limited; but by the successive opening of others each day, the flowering season is prolonged.

Nothing is known of the history and introduction of this species; probably, however, it is a native of Mexico, and found its way into Europe through some of the continental travellers, and from thence was introduced into England.

As far as our knowledge of its culture extends, it requires the temperature of a mild stove to bring it to perfection. Pot in a mixture of sandy heath mould, leaf mould, and loam; and be careful to give a good drainage. When the plant comes into flower, remove to a warm greenhouse, where probably the flowers will be less fugitive. After the season of growth is over, and the leaves are dead, either take up the bulbs or place the pot in a cool part of the greenhouse, where it will be perfectly free from moisture, until the season of growth returns; then take out the bulbs, repot and start them into growth in a gentle moist heat.

It may be increased by offsets and seeds, like other plants of similar habits.

The generic name is derived from *rigidus*, rigid; in reference to the stiffness of the peduncles when supporting the seed-vessels.



S. Holden. del. & Lith.

Viminaria denudata.

VIMINÀRIA DENUDÀTA.

(Leafless Rush-Broom.)

Class.
DECANDRIA.

Order.
MONOGYNIA.

Natural Order.
LEGUMINACEÆ.

Generic Character.—*Calyx* five-toothed, angular. *Petals* of unequal length, papilionaceous. *Style* capilary, longer than the ovary, which is two-seeded. *Stigma* simple, acute. *Legume* valveless, ovate. *Seeds* without a strophiola.

Specific Character.—*Plant* a leafless shrub; *leaves* abortive. *Flowers* racemose, bright orange; teeth of calyx erect, short.

Synonymes.—*Daviesia denudata, Sophora juncea, Pultenæa juncea.*

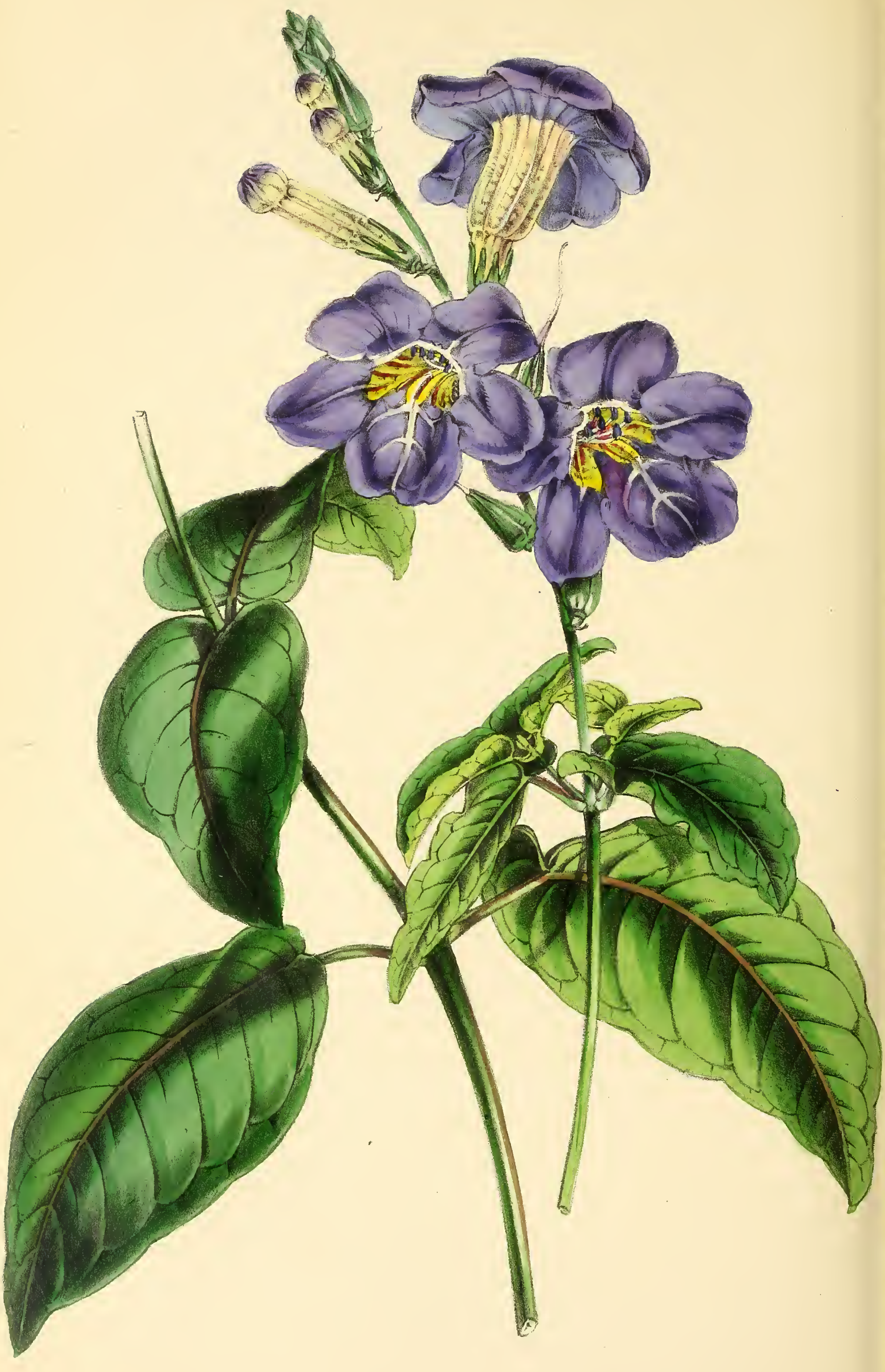
This singular but pretty flowering plant has been long an inhabitant of our greenhouses, being introduced in the year 1789, but by whom is not exactly known. It is a plant of easy culture, and was therefore at one time very common in almost every collection in this country: of late years, however, since so many beautiful kinds of Leguminaceæ have been brought from Australasia, where they abound in such great variety of colour and form, this good old plant has been partially neglected, and is now far from being so common as its beauty deserves.

Its naked leafless appearance when not in bloom, is certainly an apparent drawback to its beauty; but when its racemes of flowers are produced all over the plant, shooting out a foot or more in length, and completely covered with bright orange and red blossoms, a more desirable little greenhouse shrub can scarcely be looked upon. It grows freely in a dry, airy situation, potted in sandy heath mould, not broken too fine; the pots, however, must be well drained, as, like the species of Dillwynia, this plant is more likely to perish from over moisture at the roots, than any other cause; it is always advisable to put a good handful of potsherds at the bottom of each pot. If this be properly attended to, the plant may receive a liberal supply of water in the season of growth, but in winter it is always the best to give no more than will just moisten the soil.

Cuttings of the half-ripened wood strike root easily, if planted in pots of sand, and placed under a glass in a gentle heat; but they must be watered with caution, and very sparingly. After they have struck root, pot them off, and place in a war shaded situation until they have begun to grow; they may then be treated like th old plants.

Our drawing of this pretty plant was made in June, 1842, at Messrs. Young' of Epsom.

The generic name is derived from *vimen*, a twig, in allusion to the nake twig-like appearance of the plant.



S. Holden, del & Lith.

Asystasia Coromandeliana.

ASYSTÀSIA COROMANDELIÁNA.

(Coromandel Asystasia.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
ACANTHÀCEÆ.

Generic Character.—*Calyx* five-parted, equal. *Corolla* hypogynous, somewhat funnel-shaped; limb five-parted, segments nearly equal. *Stamens* four, nserted in the tube of the corolla, didynamous; *filaments* united at the base. *Anthers* two-celled, cells narrow, parallel, having callosities or appendages at he base. *Ovary* two-celled, cells two-seeded. *Style* imple. *Stigma* capitate, two-lobed, or two-toothed. *Capsule* clawed, four-sided, two-celled, four-seeded.

Specific Character.—Somewhat shrubby, branched; *Branches* zig-zag, slightly downy as well as the leaves. *Leaves* opposite, ovato-cordate, soft, somewhat waved, pale beneath. *Petioles* shorter than the leaves, connate at the base. *Racemes* axillary, six to ten-flowered. *Flowers* nearly sessile. *Calyx* of five, deep, lanceolato-subulate, erect segments, slightly hairy; at its base are small appressed *bracteas*. *Corolla*, with the tube long, infundibuliform, pale green, sprinkled with purple, bent at the contraction; limb deep lilac, spotted with darker spots; of five spreading, rounded, waved, unequal segments. *Stamens* four, didynamous, united at the base of the filaments, included. *Ovary* oblong, hairy, inserted in a cup-shaped *disk*. *Style* inserted obliquely at the top of the germen, hairy at the base. *Stigma* two-lobed.—*Hooker, Bot. Mag.*, t. 4248.

Synonymes.—*Ruellia Coromandeliana, R. secunda, R. intrusa, R. obliqua, Justicia Gangelica.*

This very handsome species of *Asystasia* is perhaps the most desirable of the whole genus, both from the freedom with which its flowers are produced, and their size and colour. It has been known to exist in India for many years past, but although far from being scarce in that country, we are not aware of its having reached Europe in a living state until 1844, when specimens of it were brought to this country. One of these, in August, 1845, flowered in the stove of Mr. Henderson, Pine-apple Place, Edgeware Road, London, when our drawing was made.

It is a plant of easy culture, growing freely in a warm and moist stove, with plenty of pot-room, and a liberal supply of water when in a growing state, both at the roots and over the foliage. Good drainage is also very essential to its prosperity.

The most suitable soil is a mixture of sandy heath mould, leaf mould, and a light loam, in about equal proportions, not sifted or beat very fine, but in a lumpy state and containing plenty of fibre.

The time of its flowering is through the whole of the autumn months, commencing about the beginning of August, and continuing until about the end of November. It strikes freely from cuttings of the half ripened wood planted in pots of sand or sandy soil, and placed in a brisk moist heat under a glass.

The meaning of the generic name is unknown, " but the genus was founded by Blume on a Java species."—*Bot. Mag.*

DIÁNTHUS HENDERSONIÀNUS.

(Mr. Henderson's Pink.)

Class.
DECANDRIA.

Order.
DIGYNIA.

Natural Order.
CARYOPHYLLÀCEÆ.

Generic Character.—*Calyx* tubular, five-toothed, furnished at the base with two, four, or six opposite imbricate scales. *Petals* five, with long claws. *Stamens* ten. Styles two. *Capsules* one-celled. *Seeds* flat, convex on one side, and concave on the other, pel e. *Embryo* scarcely curved.—*Don.*

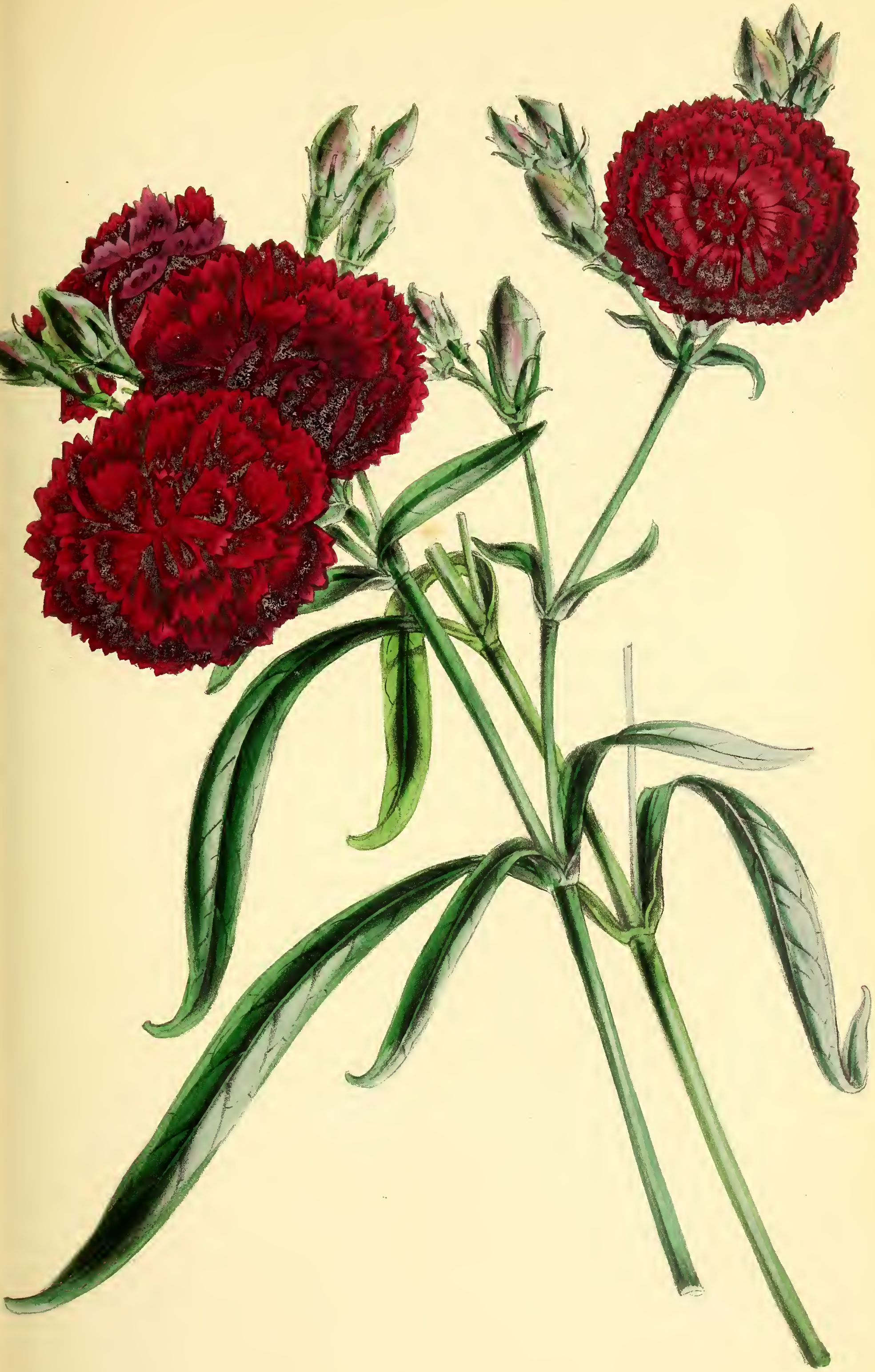
D. Hendersonianus.—A Garden Hybrid.

Our drawing of this very beautiful Pink was made in July last, at the nurs y of Mr. Henderson, Pine-apple Place, Edgeware Road. No particulars are knc n respecting its origin, or by whom raised, but from its mode of blooming and gene l growth we suspect it to be a hybrid betwixt *D. caryophyllus* and *D. chinensis*, e leaves and flower-stem resembling the former, and the flowers approaching those f the latter.

It forms a very brilliant border plant, and is also well suited for pot cultu, the flowers continuing to be produced for a considerable time. We have adop d the name by which it is known in the nurseries, and have no doubt of its becom g a general favourite with cultivators.

It is increased by cuttings and pipings, put in at the same time, and in t e same manner as those of the common Pink (*D. plumarius*), and requires simi r soil and treatment.

The generic name is derived from *Dios*, divine, and *anthos*, a flower, in allus n to the exquisite fragrance and beauty of the flowers of most of the species.



S. Holden, del & Lith.

Dianthus Hendersonianus.

TEMPERATURE AND METEOROLOGY.

Our remarks, though hypothetical in appearance, are intended to have a purely eful and practical bearing. The present year, or, rather, the two last entire asons of Winter and Spring—the former commencing with the cold weather of ovember—have presented so many striking phenomena, as not only to command verential wonder, but to prove that the science of Meteorology possesses peculiar terest, and claims the full exercise of the gardener's observant and reflecting ulties. We do not propose to amuse and mystify by the assumption of prog- stics; let any one retrace the absolute antagonism of the two last seasons, mmencing with the third week of November in each year, and reflect that the sun se at the same moment, that his course throughout the several days of any given riod, and his meridian altitude, were identical, and the fallacy of prediction must self-evident. Yet causes, agencies—active and unerring—there must have been, produce the almost exceptionless warmth of the former season, and the steadfast, iding rigours of the latter! The gardener had to contend with the several posed contingencies of these two seasons; he felt, and suffered by, the damp, the oom, and unnatural mildness of 1845—6, succeeded as they were by myriads of sect marauders; and independent of these perplexing results—strange as it may pear to the uninitiated—he found it more difficult to govern and regulate his achinery for producing heat than during the intensity of the late season, which d not finally terminate till the 6th of May. It is a fact established by experience, at any measured or weighed quantity of a combustible does not communicate so uch heat to a dwelling, or forcing-house, during mild, gloomy weather, and a utherly wind, as in a diametrically opposite condition of the atmosphere. Yet ilosophers tell us that the chemical modification of the air, as respects its constituent ses (oxygen and nitrogen), are everywhere and always the same; also that the ygen is the sole exciting and supporting cause of combustion. The development heat and light is one of the most profound mysteries of the universe; yet modern scoveries have paved the way for investigation, as we shall concisely endeavour to ove, after observing, as a leading fact, that the heat of the sun, when passing rough glass into a plant-house, diffuses heat with *perfect equability*, whether its ams pass unobstructed through that transparent, refracting medium, or are ftened by the intervention of some light screen. Our heating machinery, whatever the material employed—operating by radiation—acts unequally; as thermometers spended in various situations but too clearly evince, by the very different degrees heat which they indicate. It therefore becomes the interest and duty of every e whose aim it is to expose errors, and to promote the science of Horticulture, to ize upon, and make known, any fact that bears the resemblance of truth. Thus, reference to the sun, a modern lecturer has said—" We commonly consider the

solar beam as *Light*—in other words, that it consists only of that principle or pov
to which all luminous phenomena are due. Science, however, teaches us that t
sunbeam consists of several principles, or is possessed of powers capable of produci
several distinct phenomena. Vision and colour, calorific action, chemical chan
molecular disturbance, phosphorescent excitation, and electrical phenomena, in th
strange duality; and possibly, many of the more occult forces which so mysteriou
regulate the vital functions of plants and animals, are to be sought for in the sa
source."

These and similar data are now announced as new; yet, if our memory and mea
of reference do not deceive us, a then nameless author, commenting upon one
the most striking conjectures ever hazarded by such a man as the late Profes
Playfair, ventured, in the year 1830, to offer the following suggestions as a THEO
OF LIGHT:—"After mature reflection, I am inclined to define solar light as a mate l
fluid, in its nature the most subtile, penetrating, and energetic—the source of all t
phenomena of Heat, Electricity, and Magnetism. In all probability, light itself
in its nature subject to decomposition; it at least exerts an inductive energy, by whi
it effects astonishing electro-chemical changes." Previously he had said, "When otl
facts," (referring to the theory of coloured rays,) "are carefully investigated, I thi
it will be found more safe to conclude that the sun's rays contain a certain *princi*
by the operation of which colours are produced and developed, than that the wh
light which comes from the sun, or from any other luminous body, is actually co-
posed and made up of seven different kinds of light of different colours, and of su
only. Magnetic powers are communicated to needles and small particles of ste
by the blue rays. The close analogy which may be traced between electricity a
magnetism, might almost warrant the conjecture that light and magnetism, wh
under certain modifications within the earth's surface, constitute electric or e-
mentary fire, were it not for two considerations:—First, that magnetism is p-
duced when concentrated electricity passes through space; and then its sph
of action is at right angles to the course of the electricity: thus, a bar of st
placed transversely over a wire, conveying an electric shock, becomes a magnet:-
Second, that magnetism exerts its energy on iron, nickel, and some other metal
substances."

In endeavouring to prove that the sun is the great natural source of all t
vitalising agencies, the author of *The Domestic Gardeners' Manual* adduced many-
then—hypothetical suggestions, which modern discoveries appear to have subst-
tiated. Thus the principles of light and heat have been separated; and, therefo
if by the use of a pale-green glass, and a plate of alum, Melloni could obstru
nearly all the *heating* rays, while the same media permitted *light* to pass w
freedom, we should not be surprised if, by the operation of glass surfaces, ta
(mica), &c., modified and coloured, as casual discoveries may dictate, the solar pov
will be, eventually, so regulated as greatly to improve the action of glazed roo

The existence of two principles seems therefore to be established; what th hall we say of a third—*Magnetism?* Can we doubt its identity when we are rtified of the earth's magnetic power? And here another suggestion presents self.—Is not *cold* a substantive essence—a positive entity—and not the mere absence heat? Why may it not be referred to magnetism, since the magnetic poles are, eyond doubt, referable to the coldest and most frozen regions of the globe? Again, a fourth, we recognise the chemical principle to which so much importance is now tached that the term *actinism* has been applied to it, while its effects and the udy of it have been distinctively called *actino-chemistry.*

This curious principle is described in Mr. Robert Hunt's "Treatise on the hysical Powers of the Universe," as "one of the greatest powers of creation." early all, if not all, the phenomena of change, which have been referred to light, e now proved to be actinic powers; and beyond the influence which is exerted by upon all inorganic bodies, that of the solar beams on vegetation is proved by mmon experience. Other principles—called, by Sir John Herschel, Parathermic ys—are here alluded to: "they act partly as light, and partly as heat, yet with istinguishing difference."

It is always wise to recur to authorities where any difficult subject requires iscussion: the progress of science is slow, men oppose each other through a spirit f pure opposition, which not merely obstructs, but actually falsifies their own minds. eretofore, since the discoveries of Dr. Black, the doctrine of latent heat has been ertinaciously maintained. Now, however, we begin to admit that heat, light, lectricity, magnetism, and chemical power, are just so many substantive emanations om the sun. *He* then, the *Fountain of Light*, radiates, or transmits these italising elements to the earth, which thus becomes the great elaborating medium, herein all the operations that terminate in meteorological phenomena are performed. Subject to these considerations, what are the principles which should be dopted in the construction of our forcing-houses? If, as has been said, solar ower produces equability of heat, should it not be the aim of the forcing gardener adopt a method by which any erection that occasionally or generally requires rtificial excitement, can be heated throughout its entire area with all attainable egularity?

Yet, whether we consider the old fire-flue, the complicated steam apparatus, the ot-water pipes, channels, and tanks, the same results present themselves; for rregularity of temperature, even to the amount of many degrees, is discovered in ll of them.

In a twenty-four feet house, attempted to be warmed as a vinery by a double ourse of hot-water channels, made of twelve-inch square paving-tiles cemented, that assed on every side of the erection, the air could never be regularly heated; its emperature varied fully five degrees, and even then the utmost power of a furnace hich consumed two bushels of coke in twenty-four hours, could not insure 65° t the entrance of the "flow" water, during a severe frost, thus rendering it ifficult to obtain more than 59° at the distance of twelve feet from that entrance.

We lately described a house which, by the heating power of a chamber acti upon air circulating within it and throughout the area of the building, became v y effectively warmed. Subsequently, an opportunity has occurred to examine anot r erection constructed upon still better principles. This shall not be lost sight of, t in the meantime, while waiting for positive and conclusive evidence of facts, it w l not be unprofitable to appeal to sound theoretic principles.

1. It is a maxim, or law of physiological chemistry, as applied to aërial flui , that each gas becomes a vacuum to every other gas: thus, if a vessel contain hydrog , the lightest of all bodies that are known to possess weight, and a quantity of comm air, nitrogen, or oxygen be let into that vessel, the gas or gases so introduced w l pass interstitially through the particles of the hydrogen, without chemically uniti therewith, or requiring any additional space. We are indebted to the late J. Dalton for this most interesting discovery.

2. *Radiation* is that species of action by which heated bodies communicate h t to other bodies, or rather to air interposed between them; the power diminis s in geometric progression, according to distance. If a surface radiate heat, e intensity of that heat will be equal at equal distances, but it decreases, in *inve e* proportion, at unequal distances. How very irregular, therefore, must be the act n of all our present radiating surfaces. A flue, for instance, shall be almost r - hot at its entrance—six feet from that point its surface may not sustain 150° - and at the opposite end of the house, the hand shall scarcely detect any sensi e warmth. Now, as heat diminishes in inverse progression—if, at two feet, e radiated particles raise the mercury of a sensible thermometer 40°, the sa e instrument, remaining exactly opposite the same part of the flue, but at four f t instead of two feet distance from it, will indicate an increase of 20° only—*i. e.*, s 2 : 40 :: 4 : 20. But when the whole surface loses heat at every foot of its cour , how infinitely complicated must be the sum of its radiating power. We stand n need of improvement; and fortunate it is that the prospect brightens, and promi s not to be delusive.—More of this at an early opportunity.

Equability of heat is rendered more desirable by the accidents, which forme y were of frequent occurrence, with the old fire-flues; these, of course, ha e ceased where hot water has been substituted; but some years since, a parcel f damp moss was laid on a flue near its entrance, nothing was apprehended, but n the morning, a strong, fœtid, ammoniacal odour was detected, and on opening t e house the moss was seen reduced to ash; while vine and other leaves, at the rem e end of the house, were completely decomposed and shrivelled, though no heat h d approached. An apparatus, to produce healthful warmth, must affect the air and t e air only, and operate by means of its interstitial diffusibility.

ANDOM RECOLLECTIONS OF WINTER-BLOOMING PLANTS.

In the gaiety of summer, when all the plants around are blooming in the most lendid manner, we are liable to forget that duller days will come, and hence too equently neglect to prepare to cheat the " Ice King " of some of his terrors, by ssembling under glass such an array of floral beauty as in the dull months of inter would almost lead one to exclaim " 'tis spring! 'tis spring!" The operations f gardening are all based upon forethought, and the gardener who, in his every-day cupations, cannot see from twelve to eighteen months in prospective, does not eserve to be considered a gardener at all. Hence, then, the importance of forehought, and hence, also, the indispensability of following up the thought by action, o as to keep the machine regularly and systematically moving, and also to have a upply of whatever may be required at all seasons.

Now nothing is more easy than to have a conservatory gay with flowers throughut the winter, provided due preparation be made; but it is of no use to begin to repare in October, as by that time the plants should be grown and set with bloom, o as to be ready to unfold their charms almost at a day's notice. To effect this, hen, with some of the most showy, but at the same time common and easily anaged plants, is the object of the following remarks, which are addressed more to mateurs than practical men, but which at the same time many of the latter may rofit by if they feel so disposed.

Scarlet Pelargoniums.—Although most people are partial to this gaudy tribe of lants, it is strange that few think of growing them for winter flowering; and yet, hen properly prepared, I know no tribe which will more amply repay the attention estowed upon it. The proper method of procedure is this; in spring, before the lower-garden plants are bedded out, make choice of three or four plants of each of he following kinds:—Frogmore and Frogmore Improved, Cooper's, General Tom Thumb, Prizefighter, Shrublands, Count, Compactum, and others of the freelooming kinds, and pot them into rather light porous soil, giving them a liberal hift, and place them in a free, open situation, where they will be fully exposed to he sun. Supply them liberally with water, applying liquid manure twice or thrice week, and endeavour, by proper exposure to light and air, to induce them to make trong, short, stubby growth, in which, by the timely removal of the flower-stems wherever they appear, a quantity of fruitful or flower-producing sap may be deposited, which can be brought into action at any time when flowers may be required. To facilitate the maturing process, take the plants about the first week in August, and place them under a south or west wall, and let them remain there until the middle of September, taking care to prevent their rooting through the pots into the border, and at the same time using every endeavour to get the young growth thoroughly ripened. This treatment will probably make some of the leaves look rather yellow; but that is of little consequence, as a removal into larger pots, with some fresh soil, and a few weeks' protection under glass, will quickly bring them right again.

Plants thus treated, may be considered as safely set with bloom as any bulbo flowering plant, and a plant or two of each kind introduced into a temperature f from 50° to 55° about every six weeks, will keep up a regular supply of flowers, fr November until May. After they have done blooming in the forcing-houses, f planted out in May or June, they make beautiful specimens for the lawn or flow garden. For the same purpose, also, a few of the best of the variegated kinds shou be grown into neat specimens, as, apart from the flowers, their variegated folia will make a house look gay in winter.

Epiphyllum truncatum.—This is a well-known and very admirable wint- blooming plant, and when grafted on the *Pereskia*, or strong-growing *Cere speciosissimus*, it makes a large and very magnificent plant. It also strikes ve freely by cuttings of the ripe wood; and neat plants in thumb pots, producing fr six to a dozen flowers at a time, are very useful and interesting decorations for t drawing-room. One of the most interesting groups of small plants we ever saw w placed upon a lady's drawing-room table on Christmas eve, and consisted of c present subject, with the Cloth of Gold and common white and blue Crocuses, r and white Fairy Roses, Van Thol Tulips, and Portulacca Thellusonii, all grown small pots, and so arranged and covered with moss as to hide the pots, and form remarkably neat group of miniature plants.

To return, however, to our subject, the Epiphyllums may be grafted at any ti between Christmas and midsummer, and the only care necessary is to make incision in the stock, force the graft tightly in, and fasten it with a small peg a thorn from white-thorn. A little moss may be tied round the graft if the atm sphere of the house is dry, but not otherwise. If large specimens of this kind a desired, every branch of a strong plant of *Cereus speciosissimus* may be grafted about six inches apart, and in this manner immense plants may be produced in very short time. In grafting it on the *Pereskia* it is only requisite to stick t grafts on a young growing spine, and they will grow admirably.

In growing the *Epiphyllums* it is necessary to treat them rather liberally, givi a brisk growing temperature of from 60° to 75°, with plenty of rich manure wate but after the growth is completed the plants must be gradually hardened off, so th by the beginning of August they can be placed under a south wall in the open a where they will mature the wood and set their bloom. After the bloom is set, wat must be gradually withheld, and the plants must be kept in the greenhouse until is wished to start them for bloom. *E. Russelliana* and *violaceum* are not le interesting than *E. truncatum;* indeed, where all are beautiful, I am not quite certa that *E. violaceum* is not the most charming. For spring forcing, all the *Epiphyllu* are very beautiful and easily managed, such as *E. speciosum*, *Ackermannii*, *Jenkinson Conway's Giant*, &c., and the same treatment is applicable to all, viz., an early a thoroughly matured growth, and gradual drying off afterwards.

Begonia coccinea.—This is a magnificent plant, blooming profusely, either as a rge or a small plant, and continuing for a very long time in perfection. It is adily propagated by cuttings in a gentle bottom-heat, at any time, and plants ruck in the spring or summer make beautiful specimens for blooming through the llowing winter. All the Begonias grow freely in any free open soil, but a mixture, nsisting of turfy-loam, leaf-mould, and peat, in about equal proportions, with enty of coarse sand, is the best for them. In potting, observe to elevate the ball little in the centre of the pot, as water, in a stagnant state, about the collar of the lant is very injurious. For decorative purposes, neat plants, in 24 or 16-sized pots, e the most serviceable; and cuttings rooted in the spring, and grown gently on rough the summer, make plants of this description without much trouble. These lants if grown through a second season make magnificent specimens, if they are hortened in a little at the time of starting them, and are kept in a forcing-house ntil they get well established. *B. incarnata*, with its delicate pink flowers, on a ush three or four feet in diameter, is scarcely less beautiful than *B. coccinea*; . *manicata* is singular and deserving of cultivation, as are also *B. fuchsioides*, *lba-coccinea*, *odorata*, and *hydrocotilifolia*. *B. atrosanguinea* and *zebrina* are lso remarkable for their foliage. The *Begonias* require a temperature of from 50° 65° to bloom them well, but once open, the flowers will stand for a long time in a emperature of 45° without injury.

Euphorbia jacquiniflora.—Who is there who does not admire this splendid lant? With its wreath-like branches of bright orange-scarlet flowers it is certainly ne of the finest plants in cultivation, and claims a front place in every conservatory. t is readily propagated by cuttings of the ripened wood, in a brisk bottom-heat, and he cuttings, if stopped occasionally and kept growing in a forcing-house through the ummer, make beautiful plants for blooming the first season. To ensure their looming it is necessary that they be ripened off in the autumn, and for that purpose hey should be removed into the greenhouse about the middle of August. They vill bloom during the winter in a temperature of from 50° to 60°, and after they get habby they may be set aside, and kept almost without water, until it is time to start hem the following season. In starting, prune them in to within two or three buds f the old wood, and after giving the soil a good soaking of water, lay the pots on heir sides in a brisk heat, until the shoots are an inch or so long, as this, by equalising the distribution of the sap, will cause many buds to break which otherwise might remain dormant. When the shoots are about an inch long reduce the balls and re-pot into smaller pots, using the same compost as for the Begonias, and plunge the pots in a brisk growing-heat of 65° to 75°. In such a situation they will soon make progress, and by proper attention will form plants five or six feet high, and proportionately bushy, by the autumn. *Euphorbia splendens* also makes a fine plant for spring forcing, but if required very early should be forced to make an early growth in the preceding season.

Poinsettia pulcherrima.—This, with its magnificent scarlet bractæa, is a splendid plant, and a fit companion for the Euphorbias. It requires nearly the same tre ment, with the exception that it must not be stopped quite so frequently, but rath be allowed to run at random. The flower is almost insignificant, but wh vigorously grown, the bracts or floral leaves both of this and *P. pulcherrima all* the white variety, are remarkably beautiful.

Poinciana pulcherrima.—Writing of Poinsettia brings to mind this splend stove plant, which is hard-wooded, and belongs to the natural order Leguminos It is a free-growing plant, producing bright purple-scarlet, bottle-brush-like flowe on small branches from the old wood, so that the plant requires to be grown a seas or two before it blooms much; but if it is grown vigorously through the summe and, after the wood is ripe, allowed to go to rest, and pruned closely in, and start about Christmas, it will form a magnificent plant in February and March.

Tropæolum Lobbianus.—This is one of Messrs. Veitch's acquisitions throu their collector, Mr. Lobb, and is an invaluable plant for winter blooming, produci bright orange-scarlet flowers very profusely, and quite as bright in colour as the scarl geranium. It is readily propagated by cuttings, and will grow in any common so To bloom it properly, it requires during the winter a temperature of from 50° to 55

Cestrum aurantiacum.—A comparatively new plant, producing bright oran flowers in November and December, succeeded by fruit which is almost interesting as the flowers, though very dangerous, being a deadly poison. It readily propagated by cuttings, in spring, and the plants require to be grow vigorously through the summer, and gradually hardened off for blooming towar the autumn. In the second season it merely wants to be cut in and started in th spring, giving it plenty of pot-room, and occasionally stopping the strong growths the plants progress in size. It will bloom in a cool greenhouse.

Eranthemum pulchellum.—This is an old plant, but a very fine one for wint blooming, and is also very easily managed. Cuttings struck in the sprin occasionally stopped so as to make them branch, and grown in a forcing-hous through the summer, make admirable winter-blooming plants, and the best of thes kept through a second season, and properly managed, make magnificent specimen The Eranthemums will grow in almost any soil, and, so long as they have hea and moisture, and are kept clear from insects, will scarcely go wrong. *E. bicolor* also a fine spring-flowering plant.

Linum trigynum.—Contrasting with the bright purple flowers of the precedin plant, this is a very useful and easily-managed plant, striking root readily in an common soil in heat, and growing with the greatest possible freedom. It produce bright yellow flowers, and a few plants introduced into heat about once a mont during the winter will give a regular succession of bloom. The only objection to th plant is the affection which the red spider has for it; but if kept vigorousl growing and copiously syringed, these pests may be kept under.

Justicia speciosa.—An old, but desirable plant, producing purple flowers, an requiring the same treatment as the Eranthemums. *J. coccinea* is also a ver vely plant, probably the finest of the tribe, not so much cultivated as its merit ntitles it to be.

Ruellia macrophylla.—The plant figured at page 29 of the present volume is also very superior stove plant, blooming through the winter with great freedom; and e old *R. formosa*, with its bright scarlet flowers, is also a good plant for our resent purpose.

Pentas carnea.—A few good plants of this should always be grown in the stove rough the winter, as they produce a profusion of flowers, which are very acceptable r *bouquets*. The plant is too easily managed to need a remark.

Gesnera zebrina.—This and *G. elongata* are two admirable plants for winter: e former, like the *Achimenes picta*, which must be classed with it, is propagated y the division of the grub-like tubers, and these, for winter-blooming, must be tarted about July, and kept vigorously growing. They are remarkably handome plants both in flower and foliage. *G. elongata* is propagated by cuttings, hich strike readily in heat, and, to make fine plants, require to be grown vigorously hrough the preceding season.

Manettia bicolor.—A free-growing stove climber, striking with great freedom, nd, if properly encouraged, covering a large trellis in a very short time. It is a tove plant, but, to ensure its blooming, it is advisable to ripen off in the greenhouse owards the autumn.

Cinerarias.—These are indispensable plants for winter decoration, and of themelves will form a very good show. Everybody knows they may be propagated by eeds, by cuttings, and by division of the plants; but the most simple way of nanaging them is this:—in June, after they have done blooming, prepare a piece f light rich ground in the open garden, and having reduced the ball, plant them ut at about eighteen inches apart, and supply them liberally with water whenever hey require it. Here they will grow vigorously, so that by the end of August they vill be fit to take up and part. At this time the strongest plants must be potted nto small pots, in a compost consisting of light loam, leaf-mould, and sand, with vhich a little soot may be intermixed, and afterwards placed in a close cold frame, nd shaded until they make root; but the smaller plants may be pricked out in the pen ground at about nine inches apart, where they may remain until October. The first lot will be in bloom in November, and the second will give a succession until the following May. If fine specimens are wanted, they must be liberally treated, both at the root and branch, by giving plenty of pot-room, and supplying them liberally with manure water, and by maintaining at all times a kindly moist atmosphere.

In addition to the preceding plants, *Fuchsia serratifolia* is also a fine winter-flowering plant, and with a good stock of the double and single Chinese Primulas, some Heaths, and plenty of Tree and Neapolitan Violets, some Mignonette, and forced Roses and Bulbs, a first-rate display may be kept up from Michaelmas until May-day.

ON PRUNING AND TRAINING.

In a paper, headed as above, a year ago, we directed attention to what might effected by pruning and training, if those operations were rightly done, so as develope what they are capable of accomplishing. We now cursorily return to t subject, and desire to fix the attention of our readers, by instancing a genus or t of shrubs, or trees, which are so eminently benefited by judicious and well direct pruning and training.

That the spring and summer, or the growing season, is the most suitable, as w as most pleasant time, for the purpose, there can be no dispute. Amateurs, a persons whose acquaintance with the strength and enduring nature of the growi principle of plants, during spring and summer, is limited, may form a good idea the subject, by cutting in, severely, any woody plant, and rubbing off all the ne shoots as they are produced; the pertinacity with which fresh ones will continue be put forth, until late in the autumn, is a convincing proof that the force whi induces them to continue so repeatedly springing is no small one, and *that* force i in a great measure, subject to the pruner and trainer.

Greenhouse Azaleas, probably of all plants, if properly treated in other respect exhibit the gratifying effects of tasteful and good training. In the case of plan cultivated in pots or tubs, when success has attended the endeavours to produ specimens of good shape, its invaluable aid is strikingly conspicuous; and not le evident is the neglect of training in these kinds of plants.

Azaleas are not very easily trained to any form we may wish them to take, b constant and persevering endeavours will accomplish very much. The plants shoul be commenced with whilst young, and if attended to regularly, until the foundatio of the desired shape is satisfactorily established, the after-training becomes easy an natural. Stopping, or pinching off the ends of the growing shoots, and disposin and securing the main ones, which must often be done with a sacrifice of the flower are amongst the principal points in training and pruning greenhouse Azaleas.

Tender Rhododendrons are less difficult to manage; their beauties, however, ar wonderfully enhanced by an uniform disposal of their branches whilst young, an the effects of such treatment is very apparent, especially in the fine kinds, whe grown to a large size.

What has been said of Azaleas and Rhododendrons, which require the shelter o the greenhouse, and are generally confined to pots or tubs, is quite applicable, a far as training is concerned, to the hardy species, especially to those of the forme The members of that genus are frequently planted in some of the most conspicuou parts of the pleasure ground and garden, either in groups or as single specimens but they are often sadly deficient, as individual plants, of anything like an agreeabl shape. This is a matter of regret, because a clump of hardy Azaleas, of differen inds, as well as isolated specimens, would be tenfold more beautiful if all the dividuals which compose it were faultless as specimens. Planting at the time the lants are small, at a much greater distance from each other than is usually done, d a trifling attention to training, would be productive of a considerable advance in e right direction; but if they are to be made thoroughly handsome bushes, full ttention must be paid to pruning and training.

Hardy Rhododendrons, Kalmias, and all allied genera, may be included in the bove observations, for although they frequently of themselves grow to beautiful bjects, yet there seldom occurs an instance of a specimen in which the above ttention would not have wrought some decided improvement.

ON FLOWERING THE CAMELLIA IN WINTER.

An observation or two on this subject, made at page 112 of vol. xiii., attracted onsiderable attention, and would doubtless be all that the practical and experienced orticulturist required, if he was not already familiar with the fact, that Camellias ay be had in bloom two-thirds of the year. Sufficient was there said to enable hose classes of individuals to adopt measures that would lead to the accomplishment f their wishes. Amateurs, however, and many others, who take an active interest n gardening pursuits, but have too little leisure to bestow that attention to the letails of practice, may require a fuller explanation. The following few remarks re intended to supply the deficiency.

Young plants of the Camellia, in which it is desirable to induce an early flowering abit, should be very gently forced into bloom, and ought not at the commencement of he process to be compelled to develope their blossoms more than a fortnight earlier han they have been wont. The first attempt at forcing, in the hands of inexerienced persons, will probably be a failure, but, notwithstanding this, the plants vith which the experiment has been tried must not be abandoned. We style the rocess *forcing*, because in the outset compulsion is necessary, but afterwards force s altogether abandoned. If the first effort to procure early Camellia blooms should ail, either the management has not been right, or the plants are not in good health nd vigour. Whatever may have been the cause, let the plants have their regular easonal treatment, as though they had bloomed ever so well. They should be nduced to make as strong and as early a growth as possible, and that growth ought o be quickly matured.

Considerable progress will have been made the first season if proper attention as been directed to the points mentioned. The second year a similar course should be taken, only a greater degree of earliness should be aimed at; and likewise the third year, which will be sufficient to establish the early blooming habit. October may generally be considered the commencement of the early blooming season.

It is quite unnecessary to say anything on the desirableness, of having Camelli blooms enjoyed, for so long a period as from the beginning of October, to as late i spring as their development can be retarded. It only remains for us to add, tha everything approaching a sudden change of condition in the management must b scrupulously avoided.

REVIEW.

THE ROSE-GARDEN.—By William Paul, of the Nurseries, Cheshunt. In twelve monthl Parts. Illustrated with coloured plates and woodcuts. *Sherwood & Co.*

FEW persons in England are better qualified to prepare a work of this description than Mi Paul. It is true, treatises on the Rose have now become numerous, and some of them ar excellent, having been written by persons of known capabilities and experience; the subjec therefore, might almost be considered exhausted: this, however, is far from being the case every time it is re-examined, something new presents itself; facts which were omitted in a previously written works, become known; and hints of much value on particular points of cultivation are placed before the public.

Much of what will be found in the "Rose Garden," is from the personal experience an observation of the author. On this account we can safely recommend it; we feel satisfied it details may be depended upon, and its directions will ensure success. It is formed into tw divisions:—the FIRST comprises the History of the Rose; the Formation of the Rosarium, an Rose Clumps in general; Remarks on Locality, Soils, the Improvement of Soils, &c.; O Pruning; Hybridizing; Raising of Seedlings; Culture of Roses in Pots; Forcing; Budding Grafting; Exhibiting; and various other operations and amusements connected with the cultur of Roses. The SECOND division contains an arrangement of all the approved Roses known; thei colours, size, form, degree of fulness, habit, and rate of growth, which points have been note chiefly from specimens when in flower. In addition to this, any peculiar methods necessary to b observed in the cultivation of particular groups, will be recorded, and the purposes for which eac group is best suited; as, for example, whether for Standards, Dwarfs, or Climbers; for Forcin or Pot-Culture. A portion of both Divisions of the work are to appear in each Part.

Each Part consists of twenty-four pages of letter-press, illustrated with one or two highly finished coloured plates of new and first-rate kinds of Roses, with occasional woodcuts to illustrat the practices of Rose culture. And at the end of the work it is intended to form an appendix, t contain some of the more interesting and important opinions of cultivators.

That some idea may be formed of the matter, it might be right to give a specimen. All th Roses in cultivation are divided by Mr. Paul into two classes—*Summer* and *Autumn* Roses. Th *first* contains twenty-one groups or families; and the *second* seventeen, making altogether thirty eight groups.

CLASS I.—SUMMER ROSES,

BLOOMING IN MAY, JUNE, AND JULY.

Group 1.—*The Alpine or Boursault Rose.*

The Boursault Roses are very distinct from all others. The shoots are long, flexible, ver smooth, in some instances entirely free from thorns; the one side often of a pale green, the othe of a reddish tinge; the eyes are formed further apart than in common. The flowers ar produced in large clusters. By these features are the varieties of this group readily distinguished The Boursault Roses, though of vigorous growth, are not of a sufficiently pendulous habit t make perfect "*Weeping Roses*" without assistance from the cultivator. When desired to b formed into such, the branches should be drawn to the ground with tar-twine or twisted bast when the immense trusses of flowers they bring forth give to the tree an appearance trul rgeous. One inducement to grow them in this manner is, that as most Roses of a pendulous owth produce pale-coloured flowers, they introduce a charming variety among *Weeping Roses;* : the Boursault are mostly crimson or purple.

Besides forming good Weeping Roses, they are fine grown either on pillars or on fences with northerly aspect, a situation where few other kinds succeed well. It might be supposed that ey are very hardy, growing naturally, as they do, on the Alps of Austria and Switzerland. nd such indeed is the case; they will bloom well in situations where they scarcely obtain a eam of sunshine. The popular name of the group *Boursault*, is due to the first double Alpine se being so named in compliment to M. Boursault, a French cultivator. The Blush and the imson have been recommended by many as stocks for budding and grafting the Tea-Scented oses on. The Blush has been used here (Cheshunt), but is not approved of; it is the worst of l stocks, and more disposed to canker than any other with which we are acquainted. The Crimson, hich appears more suitable for the purpose, has not been tried extensively. I believe, however, *r general use*, no stock can be found better than the Dog-Rose; certainly none can be hardier.

For pot Roses, however, there are others which, for one reason, seem to offer advantages; ey produce a greater quantity of fibrous roots in a smaller compass than the Dog-Rose; a oint of importance when a plant is confined for space. Of such nature are the Boursaults nd the Manettia Rose. But when a plant is not confined for space, when the roots can dive into e free earth in search of food, then I would prefer the Dog-Rose to any other.

Boursault Roses should be well thinned out in pruning; but the shoots that are left for owering should be shortened in very little.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIODICALS FOR JUNE, &c.

Acacia celastrifolia. If a gracefully formed, much branching, evergreen shrub, with rather ense and broadish, bright glaucous-green leaves, whose ultimate branches are literally bowed own with the abundance of yellow heads of highly fragrant flowers for nearly two months of the ear, and those almost of the winter season, can have any claim to cultivation, then may *Acacia elastrifolia* be confidently recommended. It was raised from Swan River seeds collected by Ir. Drummond. In odour it a good deal resembles that of the whitethorn, but is more delicate. lthough very different, it will rank near *A. myrtifolia.—Bot. Mag.*, 4306.

Aconitum autumnale. Received from Mr. Fortune, who found it in the gardens of Ningpo, n the north of China. It is prized there, chiefly on account of its habit of blooming late in the utumn or winter. As it will certainly prove quite hardy, and retain its habit of flowering in the inter, it will possess some interest to the collectors of new hardy herbaceous plants. In its manner of growth this Aconite resembles *A. Napellus;* in the form of its flowers, *A. Cammarum.* It rows about three feet high, and produces its flowers, which are lilac and white, in a simple spike, hich, however, in time becomes a panicle, by that retrograde development which seems common o all Aconites. The smell of the blossoms is heavy and unpleasant.—*Hort. Jour.*, vol. ii., 77.

Berberis ilicifolia. Of this rare and beautiful *Berberry*, hitherto known only to the hardy dventurer on the coasts of Fuegia, beyond the Straits of Magalhaens, living plants were sent home y the officers of the Antarctic voyage, under Captain Sir James Ross, to the Royal Gardens, with ther treasures of those Antarctic regions. So much did they suffer during their perilous voyage, hat, of the Berberis, only one could be successfully reared, and that has now produced its deep range-coloured blossoms, which, taken in conjunction with its bright, glossy, holly-leaved foliage, enders it one of the handsomest known species of the genus. The berries are of a deep steel-blue olour, and remarkable for their gourd shaped form. *Bot. Mag*, 4308.

Chænostoma polyanthum. A small suffruticose half-hardy plant, of very pretty appearance, equiring the same treatment as Verbenas, and, like them, well suited for bedding out in summer.

It is easily increased either by seeds or cuttings, grows freely in any rich garden soil, and flowe abundantly from July to September. The flowers are orange and pale purple. It requires t protection of the greenhouse during the winter.—*Bot. Reg.*, 32.

Cleisostoma spicatum. A Borneo plant, exhibited by Messrs. Rollissons, at the last meeti of the Horticultural Society. The leaves are large and broad, the flowers red and yellow, in sho oblong spikes.—*Bot. Reg.*, 32.

Collania dulcis. Said to be a native of Huallay, near Pasco, in Peru, at a height of fro twelve or fourteen thousand feet above the sea, and to be called by the country people *Campanill coloradas.* The stems grow about a foot high, and the purple and green flowers are produced the termination. If kept in the greenhouse nearly dry after its stalks decay, it will shoot again April, and after standing out of doors, plunged in a sand bed, during the summer, it flowers October or as late as December.—*Bot. Reg.*, 34.

Epidendrum plicatum. This fine species has been introduced from Cuba, by Messrs. Loddige with whom it flowered last January. It is remarkable for the petals, which are green insid with a few purplish stains near the point, being of a deep rich violet on the outside. The sepa are greenish, stained with dull purple on both sides. The lip is of a very rich purple.—*B Reg.*, 35.

Gardenia malleifera. Sir William Hooker's first knowledge of this fine plant, with its larg white, fragrant flowers (not unlike the odour of primroses), and extraordinarily large and clappe shaped stigma, so large and so heavy, that it rests, as it were, on the lower side of the flower, w from dried specimens sent by Miss Turner, daughter of the then Governor of Sierra Leone. T introduction of living specimens is due to Mr. Whitfield, who collected for the Right Hon. the Ea of Derby, to whose stoves at Knowsley, this and many other plants of rare beauty were introduce in 1843. This species loves heat and moisture, and, planted in a good sized pot, with a mixtu of heath mould and loam, makes rapid progress, and begins to flower when only two or thr feet high. It would seem in its native country to form a large shrub.—*Bot. Mag.*, 4307.

Henfreya scandens. The climbing habit of this plant is an unusual feature in the order which it belongs, probably nearly related to Thonning's *Ruellia quaterna*, another West Africa climbing plant, with white flowers. This species seems to be common at Sierra Leone; it w found there by Mr. George Don, and also by Mr. Whitfield, the latter of whom introduced it in living state. Amongst the numerous plants of climbing habit which adorn our stoves, *Henfrey scandens* is assuredly a subject deserving our notice. Under the most liberal and satisfactory cultiv tion, it never ranges beyond proper limits. Its foliage is not subject to injury, being also dark gree coriaceous, and permanent, contrasting admirably with the delicate, white, Petunia-like flower which are produced in the utmost abundance in racemes, at the angle of every leaf, continuing throw out a succession of bloom for several months.—*Bot. Reg.*, 31.

Ipomœa pulchella. A very handsome stove Bindweed, which flowered with Mrs. Sherborn near Prescott, Lancashire, the seeds having been received by that lady from Ceylon. It is identica with *C. heptaphyllus* of Roxburgh, and *C. bellus* of *Spr. Syst. Veget.*—*Bot. Mag.*, 4305.

Megaclinium velutinum.—An Orchidaceous plant, nearly related to *M. falcatum*, from which i lateral sepals, velvety inside, distinguish it. The flowers are deep purple, as well as rachis, excep the upper sepals and petals, which are dull yellow. Messrs. Loddiges imported it from Cape Coas Castle.—*Bot. Reg.*, 32.

Solanum jasminoides. This very pretty climbing plant seems to vary in the colour of its flower When we figured it in the *Mag. Bot.*, vol. viii. to v., the specimen from which our drawing wa made, produced in a Camellia-house, was pale blue; in the Garden of the Horticultural Society where it is trained against a south wall in the open air, its flowers are nearly white; in both state it is a great ornament.—*Bot. Reg.*, 33.

Thibaudia pulcherrima. Imagine a branch four feet and a half long, dividing only at the to in from four to six rather short, leafy ramuli; the leaves evergreen, six to eight inches long; th old, long, and woody portion of the stem throwing out, on one side, numerous crowded clusters or drooping sessile umbels, of from twelve to twenty blossoms in each umbel, and in all states o progress, from the early buds, when they, as well as the pedicels, are scarlet, variegated with pal but bright green, to the fully expanded corollas, an inch long, narrowly campanulate, of a ochraceous red, veined and chequered (something like the flower of the *Fritillaria Melagris*) wit eper and brighter lines of red. The inner structure of the flower, too, is very curious, the stamens rming a close column around the style, and the anther tubes of very great length. It is a native the north of India. Relative to its culture, Messrs. Lucombe and Pince, of Exeter, observe :—lanted against the wall of a Camellia-house, (which in winter is frequently within a degree of the eezing point,) in a border composed of heath-mould, loam, and sand, which being very well ained, admits of copious waterings during the growing or summer season, it thrives remarkably ell, making vigorous shoots from three to four feet long in a year. The copious flowers appear the *two year old wood*, and first begin to develope themselves about Christmas, expanding early April.—*Bot. Mag.*, 4303.

Vanda cristata. This Orchid has not much beauty to recommend it ; but the lip is large, and ettily striped and variegated with blood colour and yellow upon a velvety ground. It blooms at e latter end of winter and early in spring, enlivening the stove at that season with its variegated owers. It inhabits trees in Nepal.—*Bot. Mag.*, 4304.

Vanda violacea. This is one of those charming epiphytes which are only procured in the rtile regions of the East. Mr. Cumming found it in Manilla, and introduced it to Europe. The owers are in short pendulous racemes, rather large, with an ivory white ground spotted with light iolet ; of the latter colour there is one large blotch within the extremity of each sepal and petal, nd a few small dots are scattered over their surface ; the lip is wholly violet. The flowers have faint and rather disagreeable smell, which is not, however, perceived till they are nearly approached. —*Bot. Reg.*, 30.

PLANTS NEW OR INTERESTING, IN FLOWER IN THE PRINCIPAL SUBURBAN NURSERIES AND GARDENS.

Æschynanthus longiflorus. Messrs. Veitch have received the above-named species from ava ; it is exceedingly attractive, with large clusters bearing from twelve to fifteen blooms of a rilliant scarlet and orange colour, each blossom about two inches and a half in length. The plant as very handsome foliage of a rich green, and will make a gay addition to our stoves. It is ertainly the handsomest of the species.

Aerides spe. nov. A beautiful species has recently flowered in the collection of J. U. Schroeder, Esq., Stratford Green, differing in habit from *A. maculosum*, to which, however, it is nearly allied. The flowers are of a lovely rosy lilac, very rich, and produced in great abundance.

Cattleya spe. nov. In the collection of S. Rucker, Esq., Wandsworth, a very beautiful flower f this species has lately exhibited itself. The plant, from its habit, thought before flowering to be f the *Sophronitis* tribe, has proved to be a *Cattleya*, having the sepals and petals—though richer n colour—like *C. Skinnerii*, the labellum formed like *C. Aclandii*, and of a deep crimson violet ue. The plant was introduced from one of the continental nurseries, but of its native country we are ignorant.

Cyrtochilum spe. nov. A pretty and superior plant, the flowers with richly brown spotted sepals and petals, labellum broad and of a light purple colour. In habit it is much like *C. hastatum*, but that the scape is erect, and the bloom—although gayer—is not produced in such abundance. The specimen here noticed was in the collection of Mr. Hunt, gardener to Miss Traill, near Bromley, Kent.

Fuchsia spe. nov. A lovely and graceful plant, introduced by Messrs. Veitch from Peru, with petalless flowers, about three and a half inches long, of a rosy violet colour ; at the division of the calyx it becomes a brilliant green ; foliage small and handsome, and promises to bloom freely.

Gloxinia Fyfiana. An English hybrid variety of this interesting genus, differing very materially from all the varieties that have been produced, by sending its bloom erect from the root ; the flowers are campanulated, all the petals regular in size, and forming a star-shaped flower : this is the more noticeable from its rich purple from the throat extending into every petal, and leaving a bold margin of white. The habit does not differ from the general appearance of the other varieties. It was in the collection of Messrs. Veitch at the last exhibition in the Gardens of the Horticultural Society, Chiswick.

Hydrangea japonica, *var.* A species differing in colour from the *H. japonica* we figured in No. 141 of our *Magazine*, being a reddish lilac in colour, the crest of bloom perhaps a little denser, and the habit of the plant less disposed to straggling, and more dwarf. It was in the collectio Messrs. Veitch exhibited at the late Horticultural Exhibition in the Society's Gardens, Chiswick.

RHODODENDRON, *var.* At the nursery of Messrs. Standish and Noble several fine hard hybrid varieties of this splendid genus have recently been in flower. Mr. S. has, after many year succeeded in producing richly coloured flowers, and the plants bloom so late that they are no injured by the frost. One of the specimens, *R. Standishii,* has fine trusses of deep crimson, wit a violet tint, well spotted on the upper petals. Another, *R. Nobleanum,* has handsome well-forme flowers of a bright rose, and has a broad stripe of pure white down the upper petal into the throat and forms a good truss. The foliage of the various specimens is fine, broad, and of a rich green very superior to any of the hardy varieties in cultivation.

ROSA ANEMONEFLORA. A curious three-leaved species, having clusters of small pale blush flowers ; the outer petals, five in number, are broad, while the centre is filled with a mass of narrow petals, giving the bloom much the appearance of a double Anemone. It was introduced by Mr Fortune, from China, and flowered for the first time in the nursery of Messrs. Standish and Noble, Bagshot.

SCUTELLARIA INCARNATA. Another of Messrs. Veitch's importations, very similar in habit to the varieties in cultivation, but having very bright rosy purple flowers, in form and growth like *S. coccinea.* This species will be a good addition to our collections, from its colour.

At the recent fêtes in the Royal Botanical Society's Garden, Regent's Park, and the Horticultural Society's Garden, Chiswick, we noticed the following specimens well-flowered and grown —*Aerides odorata,* fine, with upwards of sixty spikes of bloom ; the plant about four feet high and same in diameter. *Saccolabium guttatum,* with nineteen spikes of bloom and equally fine specimen, were in the collection of Mr. Wray, gardener to J. J Blandy, Esq., Reading. Mr. Mylam, gardener to S. Rucker, Esq., Wandsworth, had a fine specimen of *Aerides odorata; Mormodes aromaticum,* with spikes of flowers eighteen inches long, which, though not fully expanded, were sufficient to shew the merit of cultivation ; *Lælia majalis,* very fine lilac flower, with a richly spotted labellum ; *Vanda teres,* fine specimen six feet high, with upwards of thirty flowers well developed ; *Cymbidium pendulum,* with scape three feet long, flowers large, and well-coloured. *Aspasia lunata,* Messrs. Rollisson had this pretty species well flowered, and several varieties of *Stanhopea. Achimenes patens,* we saw a fine variety of this charming plant exhibited by Mr. Dobson, gardener to E. Beck, Esq., Isleworth. *Allamanda cathartica,* there were several fine specimens of this plant ; the largest was in the collection of Mr. Carson, gardener to — Farmer, Esq., Nonsuch Park, Surrey. The flowers, however, were not so fine as a smaller specimen exhibited by Mr. Green, gardener to Lady Antrobus, Cheam Park : Mr. G. had also a handsome specimen of *Gompholobium splendens,* covered with pure, bright, yellow flowers, forming a very attractive plant. *Cattleya itrina,* Mr. Jack, gardener to G. Lorraine, Esq., Carshalton, had a well developed flower of this interesting little species, pale yellow, and labellum slightly deeper in colour. *Cattleya superba,* Mr. Warner's collection afforded an opportunity of seeing this very handsome species in good flower, as well as a fine specimen of *Oncidium citrosmum* in excellent condition. Mr. Jack had a very fine dark variety of *Stanhopea tigrina* in good flower. *Hindsia longiflora* and *H. longiflora alba,* Messrs. Henderson, of Wellington Road Nursery, had these plants, so difficult to cultivate, in good flower ; and Messrs. Henderson of Pine-apple Place, had a very fine specimen about four feet high, in very good flower of *H. longiflora alba.* Mr. Lane, of Berkhampstead, exhibited a superb Moss Rose, the colour rich crimson, of excellent form, and the most delicious fragrance.

TROPÆOLUM SPECIOSUM. At the late fête in the Gardens of the Horticultural Society, Chiswick, Messrs. Veitch exhibited this remarkable and very handsome species in excellent flower ; it belongs to the pentaphyllum section of these beautiful creepers, and has flowers an inch and a half in diameter, of a brilliant scarlet, that, added to a very neat foliage, will make this species one of the most deserving of extensive cultivation. The plant is quite new to our collections.

OPERATIONS FOR JULY.

At no period of the year probably is there so much business of a strictly routine character as n this month. If we notice the *Conservatory*, there it is necessary to repeat nearly the same perations every day. Watering, maintaining a clearance of dying and dead flowers, and training limbing and other plants which have a permanent position in the erection, are amongst the daily nd chief business of the season. Many specimens here will doubtless be benefited by the application of liquid manure, but this must always be supplied with caution and judgment; weak solutions requently repeated are always preferable, even in the cases of those plants which will admit of owerful stimulation, being a far safer mode of administering it than giving strong doses at once. ll persons engaged in training climbers should bear in mind that upon their tasteful disposal at his time depends the charm and graceful beauty of their appearance hereafter. Most greenhouses nd conservatories are more or less dependent for their summer display on such plants as *Fuchsias*, *inerarias*, and choice annuals; these therefore must have a due share of attention, and if possible ot be allowed to bloom until they are required in the situations they are intended to occupy.

In the Orchid-house and stove, any plants whose growth is completed must be favoured with a ower temperature, more congenial to their condition, and so be gradually allowed to sink into a state f rest. A considerable diminution in the amount of shading, water, and other aids to growth vhich were required up to this period, may now take place. Of course this direction is not of niversal application, because there are few collections indeed in which, at all seasons, some plants vill not be in a growing state; such must continue to be favoured with those conditions which onduce to the development of their respective growths. Many of the finest Orchids bloom at this eason, and must accordingly be well looked after, that their inflorescence sustain no injury before eing fully developed.

Whatever greenhouse or any other plants are maturing their growth, they should be exposed o all the air that can be safely admitted to them. Greenhouse plants still vigorously growing may ave their shoots shortened if it is desirable to have very bushy plants; cleanliness, too, is very mportant.

Cold pits, which can be closed with glazed lights, are very suitable erections for bringing orward a large class of small plants designed for the greenhouse. Most young seedlings of greenhouse plants or small soft-wooded species, as Fuchsias, Calceolarias, &c., and annuals also, fare much better in pits, or in a common frame, if they can be placed near the glass, and receive the proper tmosphere suitable for their prosperity; indeed, plants may remain in these simple structures ntil brought beautifully and perfectly into flower, quite fit to remove to the drawing-room, onservatory, or greenhouse.

Propagation by budding, layering, and cuttings must have its due share of attention in every department. In a general way there is seldom anything lost, but much gained by beginning to propagate early. Inexperienced hands and amateurs have a double advantage; by commencing as soon as circumstances will permit, they gain experience and have time to make repeated trials in case of failure.

Potting and repotting may still be carried on, but it will be well to have an eye to the progress of the season, and make root provision for plants accordingly.

Collecting seeds and taking up bulbs must not be neglected, the former especially, as many choice early flowering plants, and those from which new varieties are raised, ripen now. Piping of Pinks, layering Carnations and Picotees, must also now have proper attention. The flowers of the two latter should be well looked to, thinned, and properly tied up.

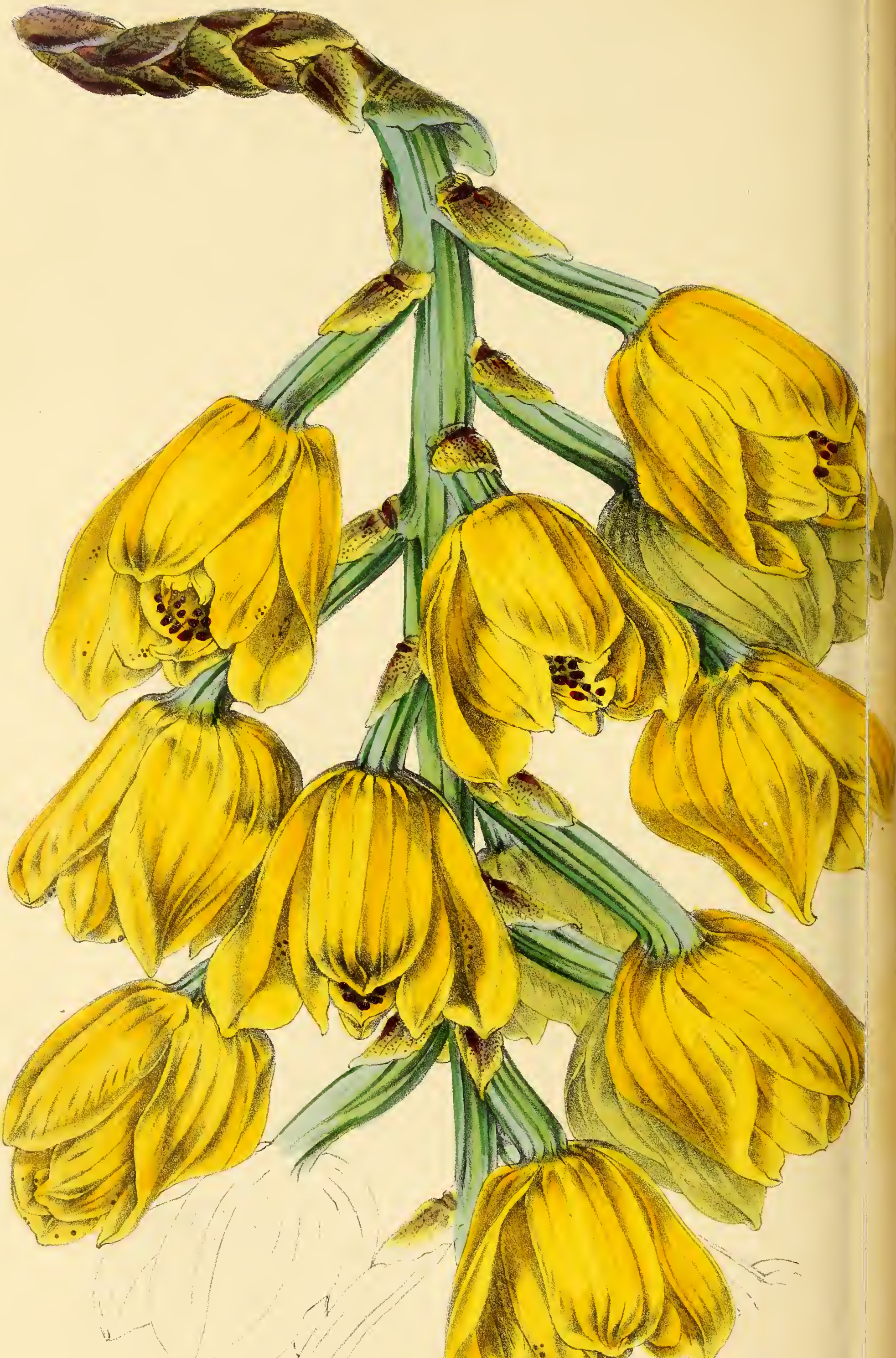
In the flower garden the main business is keeping everything in the best possible order. Flowering plants of all descriptions will require regularly tying to suitable supports, or otherwise securing, and a great amount of routine work which need not be specified will require constant attention.

DEATH OF THE DEAN OF MANCHESTER.

We deeply regret having this month to record the unexpected death of the Hon. and Rev. Herbert, Dean of Manchester, which took place suddenly at one o'clock on Friday, May 28th, his house in Hereford Street, Park Lane, in the sixty-ninth year of his age. His health had be declining for the last two years, and latterly he had been obliged to have medical attendan On the morning of his decease he appeared better than usual, and went out, but in about a quar of an hour after his return home, he suddenly fell back in his chair, and expired alm immediately.

To Botany and Horticulture this highly talented and excellent gentleman was most arden devoted. "To wonderful perseverance, untiring zeal, and much manual dexterity, he added vigour of intellect and power of perception that have rarely been surpassed. None, except th who enjoyed the honour of his intimate acquaintance, can imagine the enthusiasm with which prosecuted his favourite studies. The 'Botanical Magazine' and 'Register' received from h frequent communications. His greatest work in this line, the '*Amaryllidaceæ*,' accompani with a treatise on hybrid intermixtures, was published in the year 1837. And such leisure remained to him in the succeeding years of his connexion with a great manufacturing city, and declining strength, was employed on the *Iridaceæ*. In this work, (which, had longer time or bett health been granted to him, would have been as complete as the former,) a progress has be made which may probably be thought sufficient to render its publication acceptable to t naturalists of this and other countries. A foretaste of this work appeared in his '*Crocor* *Synopsis*,' in the 'Miscellanea' to the 'Bot. Reg.' for 1843, 1844, and 1845.

"Mr. Herbert was, beyond all other persons, instrumental in establishing and renderi popular the botanical theory of hybridization among plants; as he was also among the earlie and one of the most eminently successful, of those who applied it to Horticultural practi Upon the phenomena of hybrid intermixture he mainly founded those conclusions at which arrived concerning natural classification, and the doctrine of genus and species. They will found embodied in an essay on *Hybridization amongst Vegetables*, which has been published the Journal of the Horticultural Society; and which constitutes a rich mine of valuable facts a not less valuable reasoning."



S. Holden del & Lith

Acineta Barkeri.

ACINÉTA BÁRKERI.

(Mr. Barker's Acineta.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDÀCEÆ.

Generic Character.—*Perianth* fleshy, spreading. *epals* concave, joined at the base, hence forming a onophyllous calyx. *Petals* resembling the sepals, but ather smaller. *Lip* very fleshy, continued from the ongated base of the column without any articulation n the middle, three-lobed. *Column* erect, with a proecting rounded lobe or wing on each side.

Specific Character.—*Pseudo-bulbs* very long, broady-ovate, deeply furrowed, with the ridges wrinkled, f a dark-green colour. *Leaves* from the summit of the seudo-bulbs, two feet and more long, broadly lanceoate, tapering at each end, membranous, plaited. *Scapes* endent from the base of the pseudo-bulb, a foot or more long, lax, bearing flowers in a raceme almost to the very base, which latter is sheathed with several brown scales. *Flowers* subglobose, of a rather full yellow colour, the unexpanded ones tinged with green. *Sepals* and *petals* very concave, obtuse, nearly equal, scarcely spreading. *Lip* small, articulate upon the elongated base of the column, deeply three-lobed; lateral lobes large, erect, embracing the column; middle one much smaller, retuse; within is a large gland spotted with red. *Column* semicylindrical; its wings short; the back slightly downy.

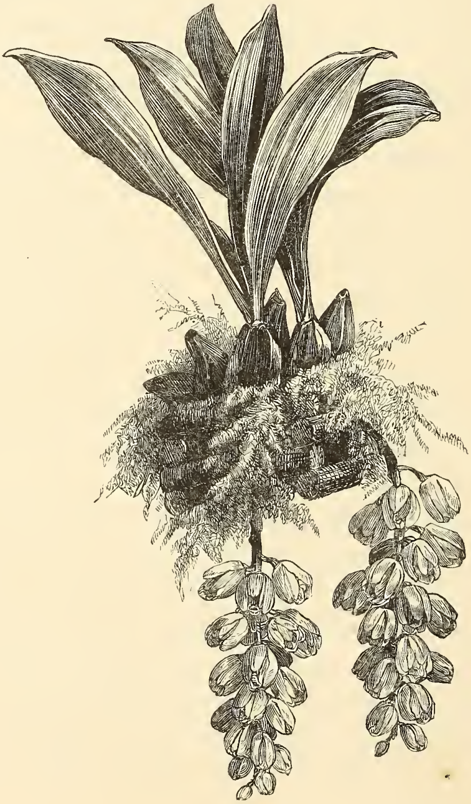
Synonyme.—*Peristeria Barkeri.*

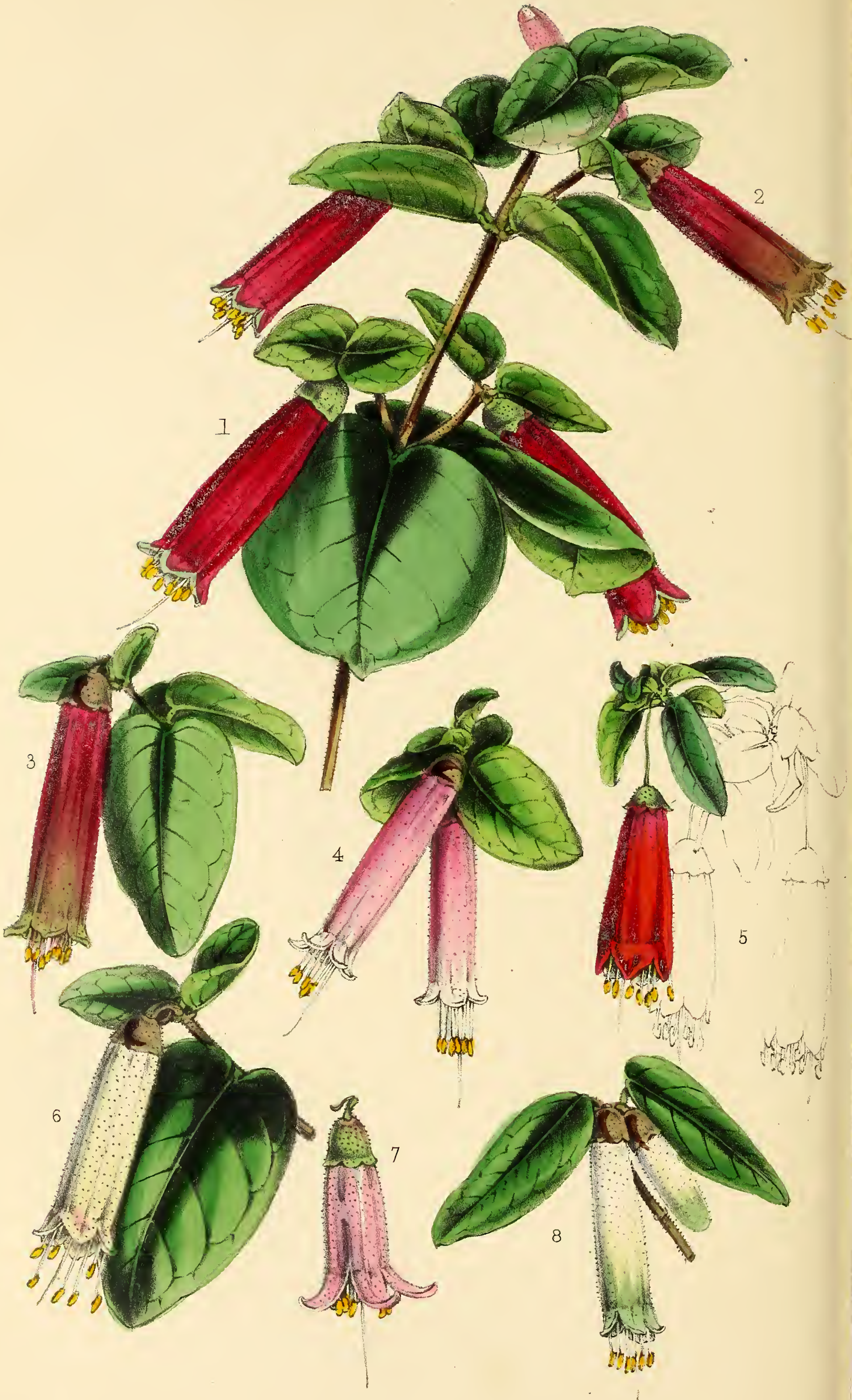
Two very distinct species of this superb genus were introduced to this country a ew years ago, one of which has been named *A. Humboldti*, and the other (our resent subject) *A. Barkeri*. The first of these Dr. Lindley has clearly proved to e identical with the *Anguloa superba* of Humboldt, Bonpland, and Kunth; and in 843 he gave a beautiful figure of it in the "Botanical Register," t. 18, under he name of *Peristeria Humboldti*. In 1845 Sir W. Hooker gave, in the "Botanical Magazine," t. 4156, a plate of a magnificent variety of that species which he named *Peristeria Humboldti fulva*. The latter gentleman also has given a description nd a fine plate in the "Botanical Magazine," t. 4203, of our present subject, under he name of *Peristeria Barkeri*.

On a recent examination of the genus Peristeria by Dr. Lindley, and by carefully tudying its species, he has discovered that, in one or more particulars, the above wo species essentially differ from the genus under which they were placed. "The ype of the genus Peristeria is the 'Dove plant' of Panama, which has an erect cape; globose, fleshy flowers; equal and regular sepals, united at the base, but projecting forwards with the chin usual in the Maxillaridous section; a lip continuous with the column, fleshy, arrow-headed at the base, distinctly articulated in the middle, and having its epichilium undivided and bent down over the face of the column ; a column short, fleshy, and wingless ; and, finally, a pair of furrow pollen masses, sessile in a narrow gland." In *Peristeria Humboldti* the upper se stands a little apart, so as to give a somewhat two-lipped appearance ; the lip has articulation in the middle ; and the pollen masses are placed at the end of a narr caudicle, terminating in a crescent-shaped gland; added to which the column furnished with a pair of very broad wings. All these circumstances induced I Lindley to separate *Peristeria Humboldti* and *P. Barkeri* under the name *Acineta;* in allusion to the immoveable, jointless condition of the lip.

For the introduction of this magnificent species we are indebted to the la G. Barker, Esq., of Birmingham, whose collector, Mr. Ross, discovered it at Xala in Mexico : it has since found its way into many collections. The specimen fr which we made our drawing flowered in the stove of R. G. Lorraine, Esq., W lington Lodge, Carshalton, in October last.

To grow well, it requires a powerful heat, plenty of water, and abundance of p room, with good drainage. In the season of rest it should be kept perfectly dry.





S. Holden, del. & Lith.

Corræas.

1 *brilliant.* 2 *rubra.* 3 *curiosa.* 4 *rosea alba.*

GAINES' SEEDLING CORRÆAS.

(1. Brilliant—2. Rubra—3. Curiosa—4. Roseo-alba—5. Pulchella—6. Magnifica—7. Delicata—8. Viridiflora alba.)

Class.
OCTANDRIA.

Order.
MONOGYNIA.

Natural Order.
RUTÀCEÆ.

ENERIC CHARACTER. — *Calyx* cup-shaped, four- thed or entire, permanent. *Petals* four, somewhat nivent at the base, or joined into a long tube. *mens* eight, equal or longer than the petals, the r opposite to them, the shortest; filaments smooth, l-shaped, or dilated above the base. *Ovary* four-lobed, densely beset with stellate hairs, and as if it were furnished with a calyptra. *Style* four-furrowed, smooth, terminated by a four-lobed stigma. Fruit of four capsular carpels; cells truncate, compressed. *Seeds* two or three in each cell, shining, fixed to the inside.—*Mag. Bot.*, vol. ix., t. 267.

GARDEN HYBRIDS.

NOT many plants can surpass Corræas as attractive winter-flowering inhabitants our greenhouses, whether we take into account the amazing profusion of flowers ey produce, or the protraction of their blooming season during the dreariest onths of the year.

Their culture, too, is simple and easy; they merely require the protection of a ol airy greenhouse, to be potted in a mixture of heath-mould and light sandy am, to have the pots well drained, and care to be taken not to over-water in inter.

All the species are natives of Australia, New Holland, &c.; but the subjects of e present plate (if we except *pulchellum*) are hybrids, raised by Mr. Gaines of attersea, in whose Nursery, Nos. 1, 2, 3, 4, 6, and 8, were drawn last October. os. 5 and 7,* were figured from specimens flowering at Messrs. Henderson's, Pine-ple Place, in December last.

The subject of hybridization has long been one of deep interest to the intelligent ltivator; but since the lucid remarks of the late Dean of Manchester in his lmirable papers on that subject inserted in the *Horticultural Journal*, vol. ii., arts 1 and 2, it has become doubly so.

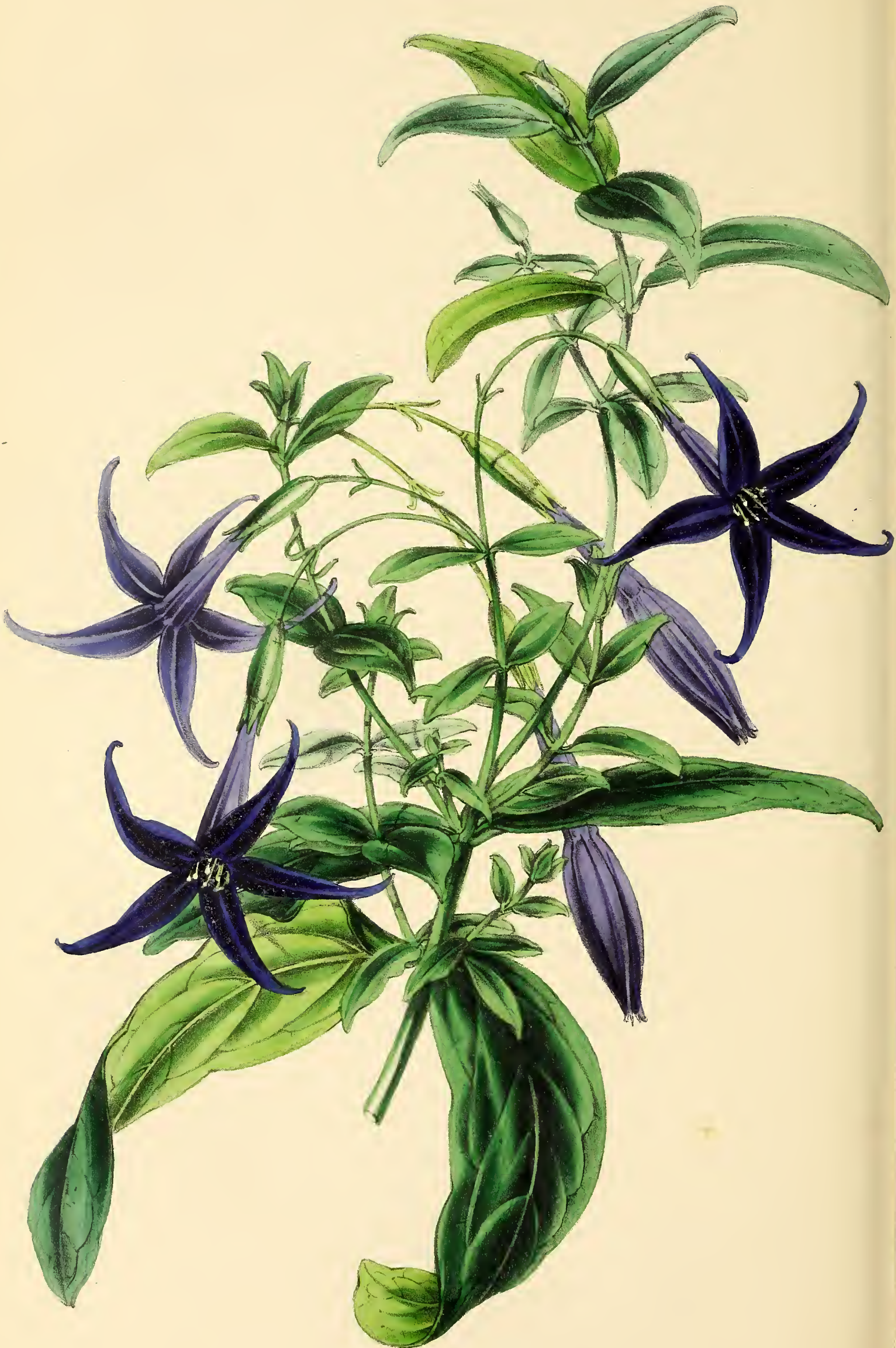
Although of late years much has been done in this respect amongst Pelargoniums,

---

* This variety has been introduced into the accompanying Plate by mistake. It has been ready figured in a preceding volume.

Fuchsias, Calceolarias, Camellias, Cinerarias, and other plants, yet this mysterio operation is very imperfectly understood; facts and observations daily demonstra what we said in *Mag. Bot.*, vol. ix., p. 267, that the intermixture of different speci of plants by hybridization is quite endless, but as yet the system is scarcely beyon its infancy.

Cuttings of the present subjects strike root, if made of the half ripened woo which are planted in pots of sand, and placed in a gentle heat, under a glass. The however grow slowly. Grafting and inarching is therefore sometimes resorted with advantage; for this purpose *C. alba* makes a very good stock, and grov quicker by cuttings than any other species. The proper time to graft is early i spring, just when the plants show signs of growth.



S. Holden, del & Lith.

Leianthus nigrescens.

LEIÁNTHUS NIGRÉSCENS.

(Black-flowered Leianthus.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
GENTIANÀCEÆ.

Generic Character.—*Calyx* campanulate, five-left, equal, smooth. *Corolla* funnel-shaped, limb ve-cleft, regular. *Stamens* five, unequal. *Anthers* ncumbent. *Style* elongated. *Stigma* capitate. *Capule* two-celled or two-valved, many-seeded.

Specific Character.—Greenhouse biennial. "*Stem* carcely branched for about a foot-and-a-half (but ending out annotinous shoots in the autumn) which erminate in a large much-branched trichotomous *anicle*, two to three feet high. *Branches* as well as he stem rounded. *Leaves* most crowded on the stem, pposite, decussate, lanceolate, acuminate, three to ive-nerved, spreading, the base almost connate, disinct and smaller, and more acuminate on the branches. *etals* long, slender, with usually a pair of subulate bracteas or small leaves below the calyx. *Flowers* gracefully drooping, two to three inches long. *Calyx* of five deep, subulate, oppressed segments, rather more than half the length of the tube of the corolla. *Corolla* deep purplish blue-black, funnel-shaped, regular. *Tube* cylindrical, dilated a little upwards; the *limb* of five spreading, or almost recurved lanceolate very acuminated segments, about half as long as the corolla. *Stamens* five, inserted a little below the middle of the tube. *Filaments* slender, rather longer than the tube. *Anthers* oblong, two-lobed. *Pistil-ovary* oblong, two-celled, and *style* rather longer than the filaments. *Stigma* large, capitate, two-lobed, velvety."—*Sir W. Hooker, Bot. Mag.*, 4043.

Synonyme.—*Lisianthus nigrescens.*

This very singular and interesting plant is a native of Mexico and Guatemala; t has also been found in Tanetze, Talca, Comaltepeque, and Xalapa. For its irst introduction to this country we are indebted to Mr. Skinner, who gathered the eeds in Guatemala, and sent them amongst other things to the Royal Gardens at Kew, in 1842. Since that period it has been received into several other collections n different parts of the country; and from a fine specimen flowering at the Nursery of Messrs. Knight and Perry, King's Road, Chelsea, in July, 1845, our drawing was made.

The culture is perfectly easy. The seeds require sowing at the same time, and in the same manner as tender annuals; and by placing them in a hotbed, or other convenient place where they will receive a genial moist heat, they will soon vegetate.

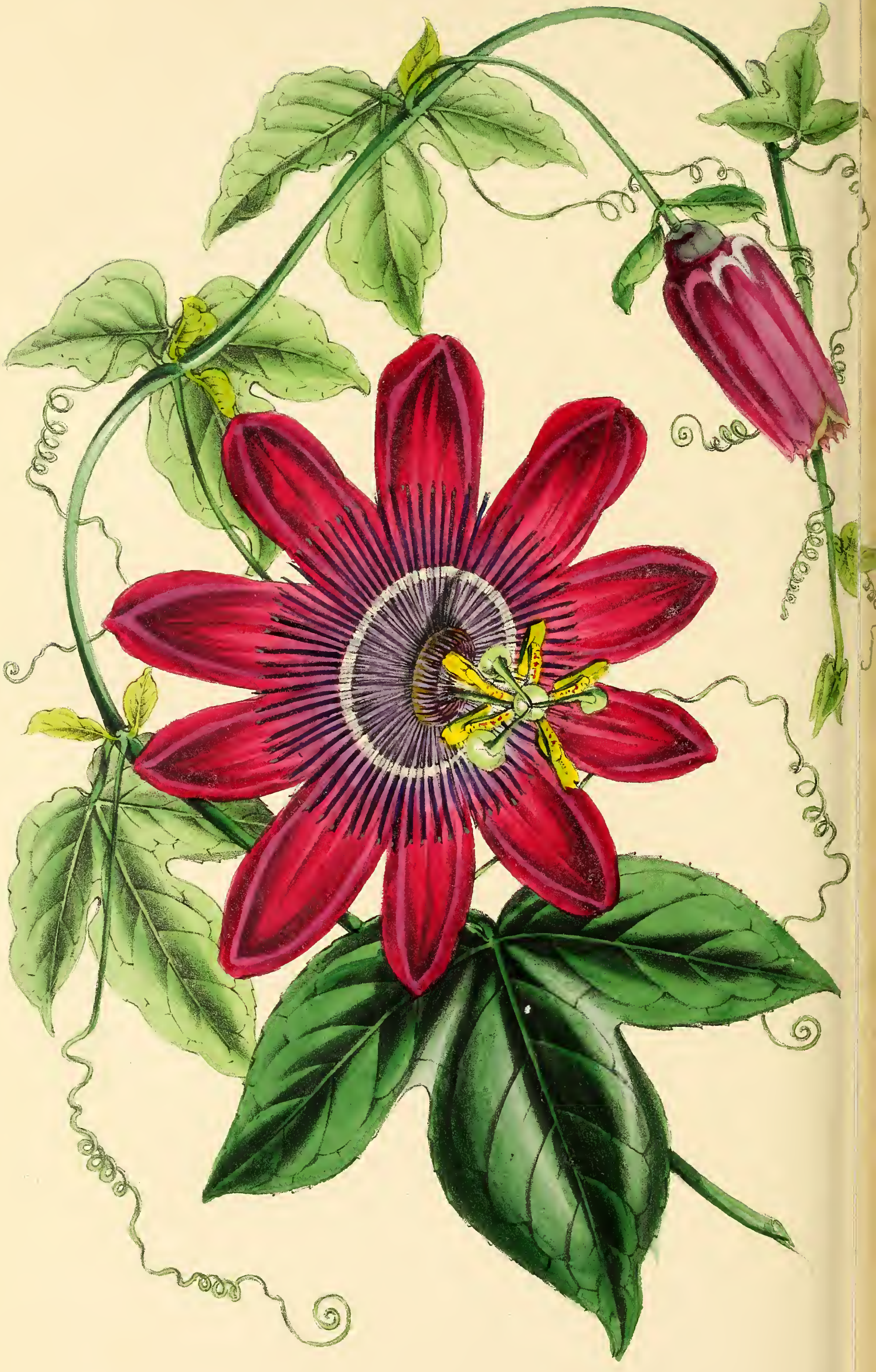
When the young plants are of a sufficient size, pot them off in a mixture of equal parts of heath-mould and well rotted leaf-mould; and as they advance in growth, repot, adding each time a little loam and sand, diminishing the quantity of leaf-mould.

In the following spring place the plants in their flowering-pots, in a mixture equal parts of loam and heath-mould, with a little sharp sand to keep it open, an be careful to give a good drainage with potsherds.

If grown in a moist atmosphere with plenty of light and heat, they will by Jun be three feet or more high, and will begin to show signs of flowering. When i bloom they are very striking and singular objects, in consequence of the very dar blue of the flowers; remove them at this time to the greenhouse, and by shadin from the sun, the flowers will continue in perfection a long time.

Cuttings of the young wood strike most readily if planted in pots of sand an placed under a handglass in a little heat. They are also increased by seeds, whic ripen freely.

The generic name was given by Grisebach from *leios* smooth, and *anthos* a flowe The corolla is regular, which distinguishes it from *Lisianthus*, with which genus i was formerly incorporated.



Passiflora Kermesina Lemichezziana.

PASSIFLÒRA KERMEŚINA LEMICHEZIÀNA.

(Lemichez's Crimson Passion-flower.)

Class.
MONADELPHIA.

Order.
PENTANDRIA.

Natural Order.
PASSIFLORÀCEÆ.

Generic Character.—*Calyx* with a five-parted limb ;
be short, having the throat ornamented with a fila-
entous crown. *Petals* five or wanting. *Stamens*
ually five, though rarely with only four. *Ovary* pe-
cillate. *Berry* commonly pulpy, sometimes slightly
embranous.

Specific Character.—*Stem* climbing, round, shrubby,
ooth, dark-green, shaded with purple, slender. *Leaves*
ree-lobed, cordate, shining, dark-green on the upper
rface ; beneath pale green, shaded with purple, lobes
rrated. Leaf-stalks round, with two small feathery
ands about the middle. Stipules leafy, somewhat heart-shaped, terminating in slender tendrils ; toothed. *Peduncles* solitary, axillary, slender, much longer than the leaf-stalks. *Calyx* crimson, consisting of five linear-oblong, acute sepals. *Corolla* consisting of five crimson petals, at first spreading, but afterwards becoming reflexed. *Filamentous crown* deep purple, spreading. A stove climber of great beauty.

Lemicheziana differs from the species in the following particulars.—It is altogether stronger in growth ; its *leaves* are much larger, and not coloured beneath. *Sepals* and *petals* oblong-lanceolate, very deep crimson. *Segments of the crown* purple, mottled with white.

This very handsome hybrid is said to have been raised in Paris, by a nurseryman
f the name of Lemichez, whose name it bears. It was introduced by Messrs.
ollisson to this country, in whose collection it flowered in October, 1846, when
ur drawing was made.

As a stove climber, it certainly is well deserving of extensive cultivation, being
f a luxuriant habit, with moderately strong stems, beautiful, shining, dark-green
oliage, and producing great abundance of fine, deep-crimson flowers, after the
nanner of *P. kermesina*.

To those persons who have convenience for growing a number of tender climbers,
ew plants are so easily managed or are more beautiful than the various kinds of
Passiflora. Some, in addition to splendid flowers and exquisite fragrance, bear a
rofusion of very pleasant, eatable fruit. Others, although destitute of the two last
qualifications, are yet so highly ornamental, that they can scarcely be cultivated to
too great an extent.

Of those which bear edible fruit in addition to their other attractions, the following may serve as a selection :—

P. alata.—An old species introduced from the West Indies in 1772, which will grow, flower, and fruit abundantly in almost any situation, either in some waste corner of the stove, or even under the floor.

P. Buonapartea.—This kind is much less known than it deserves to be: e flowers are deep red, with a purple and white crown, and fine fragrance: it does t thrive well unless the roots come in contact with bottom-heat, and have plent f room to spread; it then flowers freely, and bears large orange pear-shaped fr , full of watery pulp, of a pleasant flavour.

P. coccinea.—This handsome scarlet flowering species was introduced fr Guiana in 1820; the fruit is about the size of a small apple, and contains a v sweet pulp.

P. edulis is too well known to need much description: it is nearly hardy enou to endure the greenhouse, but will not ripen its fruit in any situation except t stove; the fruit is purple, acid, with a rather peculiar flavour, and is stated to ma a most delicious preserve.

P. incarnata, or May Apple.—A greenhouse plant, which has been introduc since 1629, but is far from being common in collections. It very commonly di down to the roots in autumn, and regerminates again in spring; it has therefo been considered an herbaceous plant: the flowers are pink, and very fragrant, a the fruit grows to about the size, and is the colour of an orange.

P. laurifolia, or Water Lemon.—A native of the West Indies and Sou America, whence it was introduced in 1690. The flowers emit a pleasant fragranc and the fruit is yellow, rather larger than a hen's egg, and contains an eatable pulp

P. maliformis, or Sweet Calabash.—Although introduced in 1731 it is ful equal to many fine ones of a much later introduction. The flowers are large an dull red, with blue rays, and very sweet scented. The fruit is yellow, and abou the size of a large apple.

P. phœnicea.—A species introduced in 1831; the flowers are dull crimson, an the fruit about the size of a hen's egg.

P. quadrangularis, to do well should always be planted where it receives botto heat. Cut in well every autumn, after it has done flowering, renew the soil, eithe wholly or in part every spring, just before it starts to grow, and when in flower giv a great supply of water.

P. serratistipula.—A native of Mexico: the flowers are not very showy, but th fruit is very sweet and palatable.

P. tiliæfolia.—A native of Peru, and introduced in 1823. It has beautiful re flowers, and the fruit is very handsome, and the flavour pleasant.

All the above, with the exception of *P. incarnata*, are natives of the tropics, an consequently require the stove, and thrive best in a strong moist heat, with a goo supply of water when in a growing state. They are all robust growers, and should be planted in a good rich loam with one-fourth rotten dung.

It must be remembered that excepting *P. edulis* none of the above species will their fruit freely, unless the stigma be fertilized by the pollen of other species; this purpose no kind is so well adapted as *P. edulis* and *P. cœrulea.*

Of those which are alone ornamental, and on that account deserve extensive ltivation, the following may be sufficient to notice:—

P. alato-cœrulea.—A hybrid raised in 1823, grows very freely in a cool part of e stove or a warm greenhouse. The flowers are rose colour and white, and the own blue and white.

P. cœrulea and its varieties are all nearly hardy, and grow freely in light soil ained against a wall in the open air.

P. cœrulea-racemosa.—This is another valuable hybrid, raised betwixt the two ecies whose name it bears. The flowers are purple, and are produced in great undance in a cool greenhouse.

P. kermesina.—This brilliant species is a free flowerer, of very slender growth, d makes a fine appearance in the stove.

P. kermesina Lemicheziana.—See Plate.

P. Loudonii has much the habit of the last, but the leaves are larger, and are t coloured with purple beneath, like *P. kermesina.* It also requires a warm stove d a very moist temperature.

P. Middletoniana (*P. fragrans*).—A fine species, native of the West Indies and outh America. The flowers are purple; the plant requires the cool stove.

P. Mooreana.—Is a native of Buenos Ayres, and was introduced in 1837. The owers are very fragrant, nearly the colour of *P. cœrulea*; and the plant is almost ardy.

P. picturata.—A native of the Brazils, bearing rose-coloured flowers, and purple d white rays. It requires the heat of the stove.

P. racemosa (*princeps*).—Flowers scarlet, exceedingly handsome. A native of razil. Requires the heat of the stove.

P. sanguinea.—A hybrid, with fine large deep-scarlet flowers, very handsome; equires the heat of the stove.

All the slender-growing species and varieties of Passiflora require a soil rendered ght by the addition of heath-mould. Never sift the soil for any of them, but oughly break it, and always give a good drainage. All the species strike readily om cuttings, planted in sand and placed in a brisk heat.

The generic name is derived from *passio*, passion; and *flos*, a flower.

ON THE AERIAL SYSTEM OF FORCING.

In our last article upon the equable diffusion of heat in plant-houses
attempt was made to show that almost every species of machinery in use, and ea
attempt to modify or improve the same, had been erected and regulated up
erroneous principles. We have two important, paramount objects in view—econo
of money and fuel, and the utmost attainable equability of temperature within t
area of the building. There is no desire to interfere with the views of the opulen
we perceive the very extensive desire that exists among persons of limited proper
to cultivate and protect the plants which they admire; and therefore, if it
possible, we would enable the amateur to possess himself of the best appliances
the least possible outlay.

Fuel of any description can but afford a certain quantity of heat; and if we ev
admit, that, by any possibility, the whole inflammable matter of a combustible
absolutely consumed, so as to give forth its heat, it still may happen that a maj
part of the heating power will never enter into the atmosphere of a house. A ve
few months have elapsed since it was proved by one of our philosophical lecture
that when coke, charcoal, and particularly pit coal, is burned in stoves of comm
form, the coal itself that lies above the portion that is in a state of actual combustion is
part dissolved, and carried into the chimney in the state of *carbonic oxide*, an infla
mable gas which, under other circumstances, would take fire, give out its heat, a
be itself converted to *carbonic acid;* a gas which is the result of complete combustio
and in itself capable of extinguishing fire or flame with the utmost rapidity. T
cylindrical, double-cased, hot-water boilers not long since so much in vogue, yie
demonstrative proof of the distillation of unconsumed fuel; for at the very time wh
the coke immediately above the bars is, to the height of four or five inches, in
state of active red heat, the cooler fuel above, recently supplied, shall appear qui
and inactive till atmospheric air from above is admitted, by removing the cast-ir
air-tight cover which secures the summit of the inner cylinder, when an explosi
puff of pale-blue tinted flame will rush through the cylinder, to a height that mig
seriously injure the incautious operator when examining the state of the fuel. Th
circumstance alone, connected as it is with the loss of so much inflammable matte
ought to disqualify these dangerous boilers.

Since the announcement of the Polmaise system, with its paraphernalia of h
plates and wet blankets, the writer has had occasion to inspect some erections, a
to bestow observation upon multitudinous articles on the merits and defects of th
so-called system. The result is, that attempts to prove too much on the one sid
and virulent abuse, replete with disgraceful falsity on the other, have thrown du
into the eyes of the sincere inquirer after truth, and equally retarded the progre
onward toward the right path. But all this while the original Polmaise has passe

o shadow, and a very much improved mode of heating, which has only borrowed e *name*, while it retains little of the substance, has, in some two or three instances, en adopted by men of discerning intellect, to the great improvement of the pro- ctive and forcing departments of horticulture.

A very fair approximation to an uniformity of heat through an entire house— th a very great increase of generally diffusable temperature, if desirable, and at mmand—has been attained. Our direct observations led to the publication of that ticle (Page 70, No. 160) on an erection which comprised a vinery and cooler depart- ent. This machinery acted so well, that, while admitting defects, we can con- ientiously recommend it to those who intend to erect one or two small houses upon gidly economised outlay: it should seem almost impossible to erect a greenhouse on more safe and efficient principles, especially if, in lieu of sliding, or even ovable *front* sashes, there be a number of external ventilating holes at the ground vel, or even rather below it, made in the front, back, and end walls for the admis- on of air from without: all or any of these may be left open, or be closed, as rcumstances indicate; but it is certain that air so admitted will never, even in the ldest weather, produce the comparative injury to plants which a blast dashing from e top, or even by front and end sashes invariably causes.

The *great principle* before-named, first inculcated by Dalton, that *each gas* acts a vacuum to every other gas, ought always to regulate the operations of all who rect plant-houses. It is this principle which forms the basis of the modified Pol- aise system; and it, or any of its improved forms, must be made to conform to hat principle.

There are few persons, in this day of philosophical mechanism, who have been ore assailed by rude aspersions than Mr. Meek, of Nutfield, in Surrey. Had hat enthusiastic, high-minded gentleman, avoided the name of Polmaise—had he imply and philosophically announced his own conceptions, now carried into full ffect, he would have been welcomed as an able exemplifier of scientific structures. e shall speak for himself in the following extract from the Journal of the Horti- ultural Society:—

"The philosopher tells us there is a form of matter which diffuses heat with a apidity unknown to any other; and, moreover, this very instrument of diffusion is he object itself which we seek to heat; thus, instead of employing a go-between, we eat *that*, at once, which it is our object to heat. We desire to heat a certain amount f *air*; we provide the heat; the air appropriates and diffuses it with an equality nd speed which evidently cannot be attained by any other means. Is it any wonder, hat a plan based on principles so natural and so philosophical, should be eminently uccessful? that it should be cheap, as compared to any other means, in its first ost, and economical in its use? For the expense of diffusion is saved. What ecessity exists of carrying heat to the air, when the air will travel to the heat? What need of boilers, cisterns, stopcocks, pipes, and water, to produce and diffuse atmospheric heat? Is it not certain that such means must involve waste in cost,

use, and constant repairs? Boilers to unset, to clean, occasionally split, pipes o-
dizing on the one surface, and choking up with incrustation on the other."

All this is true, and much more. We have within five minutes' walk, a gent-
man's greenhouse, plant-house or grapery, according to the actual processes to whi
it may be, *pro tempore*, devoted; it has a capital hot-water apparatus or triple ran
of cast-iron pipes, very conveniently fitted up; the furnace also consuming any po
combustible matter, and little of it. Yet the prime cost of this machinery, we a
told, exceeded £60, to say nothing of the house itself. And yet, this very comple
arrangement of pipage might, and would be exposed to the same calamity which, n
many years since, caused the loss of all the plants of a handsome conservatory.
happened that the year 1837 terminated with a temperature so mild, (nearly 5
that the idea of fire never once occured; the pipes were full, and all was safe; b
on the 3rd or 4th of January, 1838, the celebrated frost of that year set in *at on*
The whole volume of water froze, and, we believe, remained ice till destruction h
done its work, for the fire from behind, (*vis a tergo*), could produce no effect up
a medium so non-conductive as that of ice. As the very reverse of this fatal vi
tation, a small vinery, furnished with an elaborate hot-water apparatus, suddenly lo
an entire crop of fruit, by the intensely rapid heating of its tubes, which, defyi
regulation, raised the atmosphere to 100° in January. This was the result of a co
incurred a month or two before, and which exceeded £40!

The defects, therefore, of our best machinery are manifest; they do not equal
heat the air of a house; and so far as they *do* act by radiation, whether from h
brick flues, or from water tubes, or tiled channels, they render the atmosphere dr
and so far insalubrious. Now then, in order to remedy these defects, and to i
duce a constant interflow of fresh, warm air, charged with aqueous vapour, an
therefore brought, as it were, into the condition of a new gas that can flow interst
tially, and thus insinuate itself among the minutest particles of air already in th
house, we must so arrange the apparatus that no particle of its hot surface be s
exposed as to act by direct radiation.

A considerable period must elapse ere we can hope to construct a furnace whic
will neither cause the loss of perhaps half its fuel by the chemical formation of ca
bonic oxide, nor the diversion of the heat actually obtained, from its proper course
but, notwithstanding, approaches have been made—and we had the satisfaction t
inspect a stove which appeared to be built upon principles that gave promise, at leas
of great prospective improvements in the construction of forcing-houses. Thi
house had a span roof, with aspects to south and north; also, corresponding fron
and back upright lights. The quarries are far too small, and the laps are not puttied
therefore, from the extent of the glazed surfaces, it is peculiarly exposed to atmo
spheric influences. Yet by the situation of the furnace and its channels, all the heat
save that which escapes by the chimney-shaft, absolutely passes into the atmospher
of the house without any radiating surface whatsoever, and its equable diffusio
appeared quite astonishing.

To be a little more particular, let us suppose the case of an amateur devoted to ticulture, but whose position demands the exercise of thorough economy; he ends to build on a principle that shall secure the consumption of the lowest grade fuel, cinders, breeze, screenings of coke, &c., and convey the heat developed, void all the sulphurous and other noxious gases, usually produced by exposed heated faces, intermixed and diluted with pure atmospheric air and aqueous vapour, so to fill the entire area of the erection.

Let the erection be from 24 to 30 feet long, and 16 to 20 feet wide in the clear the external walls, within which a walk of convenient width to allow of a 2-feet- de shelf passes on three of the sides; the inner space will form an oblong chamber pit, built of 4½in. brickwork, and made perfectly air-tight, excepting in parts where openings are left for especial purposes. This pit will perform all the offices of e dung, tan, or leaf-bed of the old stoves, or of the brick water-tank of modern ections; and houses so furnished are qualified to act as Pine or plant stoves, or r the purposes of propagation. If the chambered pit be omitted, greenhouse lture can be followed out to perfection by a modification of the furnace and annels of heated air suited to the particular objects of the party.

The furnace must be placed either at one end, or at the center of the back ll of the house, according to the construction and aspect of the latter. It is to so arranged as to deliver the whole of its radiated heat into the area of a amber rendered completely air-tight on the sides and at the roof, and to convey e hot air into the pit by propulsion from a concentrated stream of cold air that all pass below the floor of the pit, through openings left for the express purpose. hus, by what the learned style *vis a tergo* (a force from behind), a column of dense ld air will propel forward the warm air of the fire-chamber, attenuated and ndered more specifically light by the expansive power of a broad heated surface; d being so pushed onward by a perpetually moving power from below and ehind, it will naturally find its way through six or more orifices left in the walls f the pit at half their height above the floor, and in places remote from the rnace.

Persons will be apt to exclaim—this is the Polmaise to all intents and purposes. Ve meet the objection, if such it be, by observing that we repudiate the term, ecause it implies the original superfluity or rather deformity of the blanket ppendage; and again, because it fosters a feeling of prejudice which is always nimical to improvement.

We have witnessed, and can vouch for the reality of steady advances in horti- ultural architecture; we have felt and paid for the defects of flues, and of water hannels; we know that there must exist causes of loss in fuel: but comparing esults, and judging from analogy, we are satisfied that from the first brick laid to he completion of a greenhouse, warm-pit, or enlarged stove, and thence onward hroughout the progressive operations of simple protection to those of the most xalted power of forcing, economy in the best sense of the word does and will absolutely prevail by the adoption of the aërial system of moveable curre philosophically provided for.

Such air can never propagate cold, because whenever it is employed as t propelling force in winter, it is already partly warmed, being obtained from t atmosphere of the house itself, though from the coldest part of it, that is, from a rather below its floor. Let any one witness a stove at work, or even feel the wa air that flows through the cold tank hours after every spark of fire has be extinguished, and he will doubt no longer.

HINTS ON FLOWER-GARDENING.

Although so much has been written of late years, not only in this but in ma other gardening periodicals, on the management of the flower-garden, it is somewh remarkable that either the principles are badly carried out, or, what is worse, in slovenly a manner, and that, too, in places where better things might be expected a ought to be produced, as to make one think the managers do not take so mu interest in first principles, as the progress of decorative art renders it necessa they should do. That much of this in too many places arises from a want of th means and appliances to boot, which can only be supplied by proprietors, is too tru but that there are other places in which every necessary aid is allowed with lit better progress, is also equally notorious. This arises partly from the managers our learned Societies considering, that as these societies were established for t promotion of science, such minor matters as decorative gardening are beneath the notice, and hence so many of the public gardens in the country have become rece tacles for mere botanical curiosities, three-fourths of which are neither useful n ornamental, and which, in the writer's opinion, are wholly unworthy of cultivatio Fortunately, the public are beginning to think the same, as is evidenced by t alterations which have recently been made in the Botanical Society's at Sheffiel Birmingham, and some other places, where botanical curiosities, which can on interest the learned or curious, have been replaced by plants which are gay, and the same time interesting to the community generally.

Other societies will doubtless follow this example; and then, instead of hearir the several curators boasting of having a plant of this or that all but worthle weed, we shall visit their gardens for the purpose of seeing the progress whic science, art, and cultivation are making; and also view them as examples, to she gentlemen how their private gardens ought to be conducted. We have alwa looked upon public gardens in this light; and we contend they ought, in eve department, to be kept in the highest possible order, so that instead of laggir behind as they have hitherto done, to be examples of the science of progress in the several neighbourhoods, which gardeners might look up to and copy. Then th lic would feel an interest in them, and they would be properly supported; but so g as they are inferior in point of attraction to second or even third-rate private ablishments, it is preposterous to expect the public to take any interest in them. is may appear to be a digression from our subject; but we make it for the rpose of shewing how much we expect from those societies which have gardens, d to show how we think they ought to contribute to the progress of cultivation d decorative gardening. Suppose the garden of the Horticultural Society of ndon, instead of being what it is in point of design and arrangement, had been d out as it ought to have been, or as some of our leading landscape gardeners uld lay it out at the present time, with spacious lawns and flower-gardens, lendid plant-houses, and a kitchen and fruit-garden replete with every necessary in e way of forcing-houses, which the most fastidious could desire, and that every partment had been kept in the highest possible trim; would it not have been tter supported than it has been, and also have been more deserving of support? e same remarks apply to almost every public garden in Great Britain; they e badly supported, not so much from a want of taste on the part of the public, from the fact of the several establishments not offering sufficient attraction to terest the public in their proper management. Only imagine the vast influence ese societies would exert over the public mind if they were managed in first-rate yle, and were examples of superior cultivation, as from the thousands and tens of ousands which visit them annually, the majority of whom may be considered to be terested in horticulture, great good must result.

Now, to proceed with our subject as connected with the principles of flower-rdening, the prevailing errors are those of planting flower-gardens without properly rmonising or contrasting the colours; planting tall plants in small beds, and small ants in large ones; neglecting to train or regulate the plants as they progress in rowth, so as to get the plants in proper and appropriate shapes; and growing a uantity of comparatively worthless plants for sake of a collection, when half the uantity of the best kinds would not only suffice, but would be far more effective as a eneral arrangement, and decidedly more interesting to the common observer. For xample, we cannot see the necessity for cultivating a hundred different varieties of erbenas, when more plants of fifteen or twenty of the best and most distinct kinds ould answer the purpose better; neither can we see the necessity of filling fifty beds ith fifty different plants, when twenty kinds would be equally appropriate, and make far more effective arrangement. No, no; the whole of our plant collections require severe weeding: at least one-half of the flower-garden plants at present cultivated hould be thrown to the winds, and have their places filled by less rare but more howy plants. We do not wish to see all the inferior plants banished entirely, as ome of the best of them, though unfit for masses, may be admissible for the mixed order, and there will make a fine display. What we want for massing in the lower-gardens are plants of close, compact, dense habit, producing abundance of right clear flowers, not by fits and starts as some do, but throughout the season, from the time they are planted out until they are destroyed by the frost in autumn.

Too much attention cannot be paid to the habit of the plants used for groupi purposes, as, if the plants are naturally of compact growth, they will not require much training and pegging down to keep them in form, neither will they look weedy or neglected where proper attention is not paid to them.

Among many of the new flowers, which, as flowers, in the eye of a florist are ve beautiful, there is a great want of compactness in the habit of growth, so much so to render many of the finest flowers almost useless for flower-garden purpos. Take for example some of the Verbenas, and a single plant will cover several squa yards of ground almost without producing flowers sufficient to form a *bouquet* the button-hole. These by gardeners are, and very properly, called weedy plan and such ought always to be excluded from a well-appointed flower-garden. F Verbenas of fine habit I should name such as Hendersonia, Atrosanguinea, Resple dens, Beauty, Princess Royal, Favorite, and others of similar habit; but those whi have been bred from Neillii, Incisa, and Speciosa, are all loose growers. Again, Petunias, we have some beds of Smithei superb, the finest purple in cultivation, a also Meteor, Princess Royal, and Famossissima, which at the present time are n more than nine inches high in the tallest part of the bed, and are yet so dense covered with bloom, that you could not in any part from the centre to the sides fi three square inches in one place which is not covered with flower. These beds we planted about the middle of May, the plants being placed about fifteen inches apa they have been pegged down three times since they were planted, and are now wh we have described them. One thing is worth remarking, and which in a gre measure accounts for their being so dense and dwarf, and that is, the young shoo are regularly stopped once a week by pricking out the points of the blooming shoot so that we have constantly a succession of young wood coming up from the botto and also a regular succession of bloom. One great advantage of training Petuni so closely as this is, that neither wind nor rain has any power upon them, where beds in which the plants are allowed to get from eighteen inches to a yard hig always look shabby for a long time after a heavy storm.

Now, our object in calling attention to these things at the present time, is suggest the propriety of commencing a reformation of our flower-garden manag ment at the proper season; and as, by the time these remarks meet the public ey it will be the season to commence the propagation of plants for the coming seaso of 1848, we would insist upon the following general principles being attended t First, with reference to the form of the garden itself; if it is proposed to make a alterations in its form, let the plans and arrangements be made at once, and aft you have convinced yourself of the propriety of the design, lay it down in a temp rary manner on a bed of sand, and then fill each bed with flowers of the same colo which you think of planting the beds with next season; recollecting, that if the be are large, each may be edged with its complementary colour—as, scarlet with whit nge with blue, yellow with purple, and the reverse; and so on of the various tints colour. This edging or bordering is an excellent plan when cold colours, as blue, purple, are planted on grass, as it relieves or throws the colour up just the same a nicely shaded black ring on a sheet of paper makes the part within it look iter than the part outside. For illustration, a bed of *Salvia patens* on grass is, a distance of say two hundred yards, almost inconspicuous; but surround the me bed with a broad margin of *Calceolaria viscocissima*, which is bright orange, d it directly bocomes bright and gay at a considerable distance.

In designing the garden, too much attention cannot be paid to introducing as nple forms as possible; for though scroll patterns and intricate tracery work ight be admired in years gone by, when gardens were more sought after for their rm than the plants which they contained—in these days, when the cultivation of wers is the principal object, those forms of beds which are the most suitable for at purpose must be preferred. Now, of all the forms for effect, there is certainly thing equal to the circle or oval, or some modification of these, always preferring e curve or line of beauty; but, of all things, avoiding acute points, and too many raight lines. Of course, if a geometrical garden has to be formed on a square ece of ground, and adjoining a square building, the boundary of the garden must, a great extent, partake of the form of the ground and surrounding objects; but, a general rule, straight lines should be avoided as much as possible. Another reat fault in designing flower-gardens, especially in small places, is that of over-owding the beds; the effect of which is, that much ground is frittered away in alks and small beds, neither of which can by any possibility ever look well. We tely re-arranged a garden, destroying upwards of thirty beds, and replacing them y eleven beds of good solid proportions, allowing plenty of space between the beds; nd the effect, now that the plants are in bloom, is much better than it ever before as; while at the same time, from the beds standing free and open, they are seen greater advantage, and are also better adapted for the purposes intended.

It is not enough, however, that the beds in a flower-garden should harmonise as colour, but it is also requisite that harmony should go further than this, and that hey should correspond in height and character of plants: thus, we would not plant wo corresponding beds, one with scarlet Pelargonium, and the other with scarlet erbena, for though in point of colour such an arrangement might be near enough, he effect would be discordant, inasmuch as the two beds would not entirely orrespond; therefore we should either plant both with Verbenas, or both with elargoniums. Small plants are admissible in large beds, but not tall plants in mall ones; but, as a general rule, it is the best to let the height of the plant be roportionate to the size of the bed.

When the plan of a garden is decided upon, and the arrangement made, number ach of the beds, and in a book, opposite corresponding numbers, enter the names f the several plants which each bed will require, allowing of strong growing plants wo to each square foot, and of smaller ones, such as *Lobelia compacta*, *azurea*, and the like, three or four plants to the same space. With an arrangement made n the autumn, and a guide like the preceding, it is easy to provide plants for a la e garden, as it is not necessary to provide more plants than are actually required, d it is easy to see that the plants are always ready. If the arrangement is left u il near the planting-out time, in the spring, the chances are that you will be defici t in a stock of some things, and have to "make shift" with some inferior kinds, d "make shifts" in gardening are always dangerous.

Another, and the last fault, in flower-garden arrangement, which we shall no e at this time, is that of arranging beds in pairs, when they ought to be planted n fours; thus, for example, supposing this page to be a geometrical garden h corresponding beds at each corner, the common practice would be to plant two b s with one colour, and the other two with another: this is wrong, and it will be fo d much more harmonious to plant all four beds with one colour, and, if you li , edge them with their complementary colour.

The preceding remarks apply also to the arrangement of Rose gardens, wh h require reforming very much, banishing the standard or tall roses, and planting e masses principally with dwarf kinds, which can be pegged down, so as almost o hide the ground entirely. We know nothing more interesting than beds of Bourb , China, Tea, and other perpetual flowering roses, which delight one from May u l October, and are always gay. More attention must be devoted to these thin : indeed, for our own part, we should not think of planting any but perpetual roses, n future; and from small gardens the French and Hybrid China roses ought certai y to be expelled.

CULTURE OF THE GENUS STYLIDIUM.

Of this interesting genus, about thirty species have already been introduced, a l many more remain to be brought into this country. They are natives of New Holla , Van Diemen's Land, and different parts of Australia, where they grow abundan y on open sandy plains, fully exposed to the sun, but where the soil beneath is t and spongy. In these situations the foliage grows healthy and strong, and t flowers are produced in profusion. Every species is of small stature, and althou the blossoms of none of them are very showy, yet all are pretty and interesting: t are, for the most part, produced in racemes, but some few appear in spikes a l corymbs. The prevailing colours are rose and pink, of various shades and degre .

The structure of the flowers is exceedingly curious, and from this peculiar the genus derives its name. The stigma is concealed in a cavity at the top of t column, surrounded by the anthers; this column is much longer than the limb f the corolla, hangs down on one side of the flower, and is extremely irritable. f touched by a pin, or any other substance, on the under side, it instantly springs and flies across to the opposite side; in a few minutes it again returns to its origi l sition, but it is some time before it again regains its sensitiveness. This curious perty is supposed to be intended to protect the parts from insects: whether this the reason or not, there is no doubt some important end is answered by so gular a provision. For the successful culture of these pretty plants, their natural bitats will furnish a pretty tolerable guide.

The best soil for all the stronger growing kinds is sandy heath-mould, with a all portion of light loam, but for all the more delicate species heath-mould alone ould be used. It is advisable to place them in pots rather small than otherwise, in winter, when there is a large quantity of soil, too much moisture is apt to retained, which is certain death.

Good drainage is indispensable; perhaps more plants are lost for the want of this n by any other cause. Lay abundance of broken crocks at the bottom of each t, and also mix some with the soil, which latter should neither be passed rough a sieve nor broken too fine, but be rough and porous, that the water may rcolate freely.

The proper situation is near the glass, in a cool, airy, greenhouse. In summer, ring the growing season, if sufficiently drained, they can scarcely have too much ter; but it is better not to adopt the common practice of placing them in saucers water, for very often, by so doing, the lower roots perish, and although the plants ay look pretty well during summer, on the approach of winter they usually perish.

When the growth and flowering seasons are over, gradually diminish the quantity water, and thus prepare the plants for their winter rest, which will continue from e end of October until the end of March, during which period the soil in the pots ould be kept partially dry, and the plants should stand in as cool and airy a tuation as possible, to be free from frost.

The annual species, as *S. proliferum*, &c., and biennials, as *S. adnatum*, *fascicu- tum*, &c., require to be raised from seeds (which are produced pretty freely) sown pots filled with fine sandy heath-mould, after the manner of other tender annuals. he profusion of bloom they bear, and the length of time they continue in perfection, e two qualifications, which, if taken in connection with their interesting habits, lly compensate for their want of splendour.

The perennial species, as *S. graminifolium*, *Brunonianum*, &c., are many of em highly ornamental; the whole deserve cultivation: they are increased both by eds, cuttings, and division. The *first* are sown, and treated as annuals. *Cuttings* the half-ripened wood are planted in well-drained pots of sand, or sandy heath-ould, and are placed under a glass, either in a propagating house, or any other tuation where they will not receive too much heat and moisture. *Division* is ffected immediately after the season of rest. The shrubby species, as *S. fruticosum*, *ricifolium*, &c., are increased by cuttings, as above, and also by seeds.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIODICALS FOR JULY, &c.

Achimenes cupreata. A new and highly interesting species of *Achimenes*, remarkable the dark copper colour on the upper side of its rather large, elliptical leaves, (not unlike, in hu those of the copper-coloured beech,) purplish-rose beneath, and the rich scarlet flowers, with t segments of the limb beautifully toothed and ciliated. It was detected by Mr. Purdie, on mo banks, near Sona, New Grenada, and from seeds sent by him, in September, 1845, to the Roy Gardens, plants were reared, which flowered in April, 1847. It requires the same treatment other species of *Achimenes*. A shallow pan is soon filled with it, owing to the extraordina stoloniferous nature of the plant ; among the dark coppery leaves the bright flowers have a ve pretty effect. *Bot. Mag.*, 4312.

Anguloa Clowesii *var.* Notwithstanding some very trifling discrepancies in structure, a more marked ones in the colour of the flower, (which is a fine yellow, with an orange lip,) Sir Hooker cannot consider this fine plant other than a variety of *A. Clowesii*, figured by Dr. Lindl in the Botanical Register, 1844, tab. 63. It was sent by Mr. Purdie to the Royal Gardens Kew, and bloomed in the collection at Syon, under the skilful management of Mr. Carton, in M last. The blossoms are fragrant. *Bot. Mag.*, 4313.

Cleisostoma ionosmum. A native of Manilla, whence it was sent to Messrs. Loddiges Mr. Cuming. It flowered in the Hackney nursery, in March, 1844. The flowers are in an op panicle, about an inch across, flat, with five obovate equal obtuse lobes, yellow with cinnamo brown blotches. The lip is white, with a few red streaks, three-lobed, with the basal lobes acu and smaller than the middle one, which is cordate, triangular, acute, and much larger than th are. The flowers smell pleasantly of violets. *Bot. Reg.*, 41.

Dendrobium chrysotoxum. A species introduced from the East Indies by Messrs. Henders and is extremely handsome. It differs from *D. densiflorum* in its many-angled pseudo-bulbs, sm bracts, and curiously fringed pubescent, not shaggy, lip ; from *D. Griffithianum* in its rou emarginate fringed lip ; and from *D. aggregatum* in the same respects, as well as in its great ch shaped, many-leaved, pseudo-bulbs. *Bot. Reg.*, 36. The flowers are bright orange yellow.

Dendrobium Egertoniæ. This species is very near *D. mesochlorum*, but the flowers are n half the size ; the sepals are pale pink outside ; there is very little appearance of a purple sta on the tips of the petals and lip, and the middle of the lip is dull yellow, not green. The is, moreover, no tubercle at the back of the point of the spur, and the lip is not fringe except at its base. If it is a less showy species than *D. mesochlorum*, it is not, on that accou less valuable, for its flowers are delightfully scented towards evening. *Bot. Reg.*, 36 *Des.*

Dendrobium mesochlorum. This beautiful species, allied to *D. crumenatum*, and resembli it in habit, although destitute of a bulbous base to its stems, was imported from India by Mess Veitch. The flowers are white, of the size of *D. crumenatum*, with a violet spot at the ends the petals and lip, and with a green stain in the centre of the latter. They have a faint, b agreeable odour. *Bot. Reg.*, 36 *Des.*

Echinocactus hexædrophorus. This handsome *Cactus* has long been cultivated at Kew, a is stated to be a native of Tampico. It is of nearly a globose form, and remarkable for its lar tubercles, which are obscurely six-sided. Its flowering season is June, and the blossoms are pa rose coloured, lively and pretty. *Bot. Mag.*, 4311.

Hypocyrta leucostoma. A Gesneraceous plant, received by Mr. Purdie from New Grenad It bears pretty, drooping, axillary, orange red flowers, in a moist stove, in April. *Bot. Mag.*, 431

PLANTS, NEW OR RARE, IN FLOWER IN OR ABOUT LONDON.

Æchmea discolor. A species much like the *Æ. fulgens*, figured in No. 116 of our Magazin though it has far less brilliancy of colour, both in the scarlet of its flower and stem, as well as t purple at the tip of each bloom. The specimen was in a collection of plants exhibited by Messr Lucombe and Co., of Exeter, at the July *fête* of the Royal Botanic Society, Regent's Park.

CALYSTEGIA PUBESCENS. Messrs. Veitch and Sons exhibited, at the July *fête* in the Gardens of Royal Botanic Society, Regent's Park, a specimen of this beautiful plant in excellent flower ; it figured in our Magazine, No. 155, and proves worthy the attention of every cultivator, from size and profusion of bloom. It answers equally well in pots or the open border.

CŒLOGYNE SPECIOSA. In the nursery of Messrs. Rollisson, Tooting, this species has lately anded its remarkable flowers ; long, dingy-yellow sepals and petals, labellum beautifully reticu- d with a rich brown on a pale yellow ground. It is more to be admired as a curiosity than for beauty of colour. We believe the species to be very rare in our gardens.

CHIRONIA GLUTINOSA. Messrs. Henderson, Pine-apple Place, have flowered a specimen of the ove, very superior to any of the species. It has large flowers, two inches in diameter, of a ght red-lilac colour. The habit neat, good, and of a rich green. We can recommend this iety, from its profuse blooming, to all lovers of plants.

DELPHINIUM CŒRULEUM GRANDIFLORUM. Messrs. Henderson have a fine collection of seed- g Delphiniums now in splendid condition, varying in height from four to six feet, and having ts from bright cobalt to the deep purple of *D. Barlowii ;* some are double, especially the variety led *D. Atkinsoni*, pale blue, and very handsome ; another variety, single, with flowers a pale ght blue, with a white spot in the centre. They bear a novel appearance, and, from their lendid colour, give an attractive and showy effect at this season to the border.

EPACRIS MINIATA. Messrs. Veitch and Sons exhibited at the Royal Botanic Society, Regent's rk, in July last, this charming Epacrid in splendid condition. The specimen was four feet in ameter, and about two feet high, grown freely and natural, throwing long branches in all direc- ons, covered with flowers of brilliant red and pure white, proving it to be the handsomest of its ce. We feel sure, now that it has been seen in such excellence, that it will become one of the ief features of the greenhouse.

HYDRANGEA AZISAI. Another of Messrs. Veitch's plants, exhibited by them at the Regent's ark July *fête*. It is every way similar to the *H. japonica* figured in No. 141 of our Magazine, aving bluish bracts and flowers.

IXORA HYDRANGÆFORMIS. This species was introduced about two years since from Singapore, y Mr. Low, of Clapton, and has recently flowered in the nursery of Messrs. Lucombe and Co., xeter. From its specific name we expected to find a large head of bloom, and were not disap- ointed, though the individual flower is not large, being about the size of *I. coccinea :* the bloom, o doubt, will be twice as large when the plant gets well into cultivation. The colour of the flowers artake of yellow and orange, very bright and dazzling. The foliage is large and handsome.

ONCIDIUM SPE. NOV. Messrs. Veitch, of Exeter, exhibited at the July *fête* of the Horticultural ociety, Chiswick, a very handsome species of *Oncid*, belonging to the *crispum* section. It is a ery gay variety, smaller than *O. crispum*, with sepals and petals bright yellow, profusely spotted ith rich brown ; labellum broad, bright yellow ground, with a large blotch of brown extending rom the neck to the centre of the labellum. The foliage and bulb are green, without any of he reddish colour so common with all the varieties of *O. crispum*.

PETUNIA, SEEDLING VAR. A number of beautiful varieties of this handsome tribe, varying rom white to deep purple, including various tints from pale rose to deep crimson, are flowering n the grounds of Messrs. Henderson, Pine-apple Place ; the form of most of the specimens is good, expanding their flower, showing a great breadth of colour. Nos. 2 & 3, both fine flowers, deep rose and good habit. No. 5 is a good-sized flower, well-formed, pale blush, with a dash of deep rose at the tips of each petal. No. 10, handsome large flower, pale, and beautifully reticulated. No. 12 is a small round flower, pale rose, tipped with a darker tint, habit neat. No. 13, bright pink and a dwarf habit. No. 16, well formed bright rose, dwarf, and very free bloomer. No. 22, bright crimson, slightly curved, but large and a free bloomer, with a dwarf habit. No. 23, large pale flower, similar to No. 10. No. 25, a deep rosy purple, very handsome. No. 124, fine large flower, well formed, of a bright rosy pink, free bloomer and strong grower. The above are the chief among the collections, and are well worth the notice of every lover of flowers.

We must again take advantage of the recent exhibitions of the Horticultural and Royal Botanic Society's Gardens, to make some remarks of the splendid specimen plants exhibited by numerous individuals, vying with each other for supremacy in cultivation, whether for compactness of form or development of flower. *Clerodendron paniculatum,* in the collection of . Ayres, fine specimen near six feet high, having several spikes covered with its scarlet blosso s. *Aphelexis humilis,* a fine, handsome, and well-flowered specimen. *Kalosanthes coccineus* super y flowered. *Dipladenia splendens,* though a small plant, had several heads of bloom well develop ; the above were exhibited by Mr. Barnes, gardener to — Norman, Esq., Bromley. *Diplade a crassinoda,* several exhibitors had this charming creeper in good condition; among them may e noticed a specimen in Mr. Ayres' collection and in that of Mr. Hamp, and another in Mes . Frazer's collection from Lea Bridge Road Nursery. *Ericas;* this splendid tribe of plants s exhibited in great variety by several individuals: among the superior sorts may be mentio l *E. Cavendishiana,* in the collection of Messrs. Fairbairn, a noble specimen; another equally fi , though smaller, in the collection of Mr. Ayres, both extremely well flowered. *E. Dicksoni,* a r e and handsome yellow species. *E. obbata,* fine and well coloured, were exhibited in a collect n from Messrs. Veitch. The latter was well-flowered in the collection of Mr. Hunt, gardener Miss Traill, Bromley, as was *E. Massonii,* a fine and well-flowered specimen. This species found in good condition in the collection of Mr. May. *E. ampullacea rubra* and *tricolor ru* were splendidly exhibited, both for form and size, in Mr. Epps' collection. *E. inflata alba* v also shown in good perfection by Mr. Rowland, Clapham. *Franciscea villosa* was in good flow , along with a well-grown specimen of *Phænocome prolifera* though not in good flower, a fi specimen of *Pimelea mirabilis,* a var. of *P. decussata,* but much finer, and a well-grown n plant of *Roella ciliata,* were in Messrs. Frazer's collection. The latter plant was grown a flowered excellently by Mr. Jack, gardener to G. Lorraine, Esq. *Leschenaultia formosa,* th charming plant was most splendidly grown and flowered by Messrs. Green and Hunt, both compactness of plant and profusion of bloom. *Justicia coccineus* and *Stephanotis floribundus,* t latter especially was a well-formed and well-flowered specimen, in the collection of Mr. Taylor.

Sobralia macrantha splendens, Miltonia spectabilis, and *Oncidium Lanceanum,* were exc lently flowered by Mr. Williams, gardener to C. Warner, Esq. *Stanhopea oculata,* Mr. Reddi gardener to Mrs. Marryatt, had this fine species in splendid condition, exhibitfng no less th fourteen scapes of bloom in different stages of growth. *Oncidium Lanceanum* with sev scapes, covered with its richly coloured flowers, was exhibited by Mr. Plant, gardener to J. Schröeder, Esq., Stratford Green. *Epidendrum cuspidatum, Aerides odoratum* and *Brass var. brachiata,* were capitally bloomed by Messrs. Rollisson's, Tooting. *Oncidium Phelpsianu* a noble specimen in fine flower, was exhibited by Mr. Hunt. *Oncidium Wentworthianum* w equally fine, and advantageously shown by Mr. Barnes.

OPERATIONS FOR AUGUST, &c.

The glorious weather which had sufficiently prevailed previous to the middle of the month, th period at which we wrote, to memorably distinguish July, 1847, will have required additional vig lance on the part of the culturist. Redoubled attention will have been necessary to keep dow insects, and to insure the proper exercise of the watering-pot. If like weather is still prevalen similar matters will demand chief attention; and preceding calendars may be consulted fo instruction respecting the clearance of insects, and also how to water so that the liquid applied ma do the greatest amount of good.

Next to what has been mentioned above, propagation is of chief moment at this season. Tw thirds of the plants required in ordinary gardens may be struck by inserting cuttings of them i suitable material out of doors, if they are closely covered a proper length of time with a han glass. All hardy, and the chief part of half-hardy things, usually employed for flower-garde decoration, can be induced to root if they are favoured with the simple accommodation mentione Pelargoniums, Chinese Roses, Pansies, and a host of other genera, will root freely without an covering beyond that a garden mat will afford, when used a few hours each day to protect fro violent sun, for the first few days, cuttings of those that are put in. Carnations must not b neglected as to their being layered this month; and Pinks, late-growing ones, may still be piped o ered. Beds of struck Pink pipings may be formed, or they should be potted where they are ant to form plants for forcing.

Layering and budding of all shrubs, trees, or plants, that can be increased by such agency, ıst be properly regarded. More things, probably, are in a fit state to layer at this season than any other; and this should be borne in mind.

Increase of shrubs, plants, &c., by whichever of the many ways of propagation it is effected, volves more considerations than may be imagined. For instance, it sometimes occurs that a rticular shrub or specimen plant would be greatly improved if its dimensions were enlarged; d some of the methods of propagation may be called in to effect such an object, without additional mbers of the plants operated upon being produced. But the principal matter brought under tention by proceeding to propagate is the merits of the various plants about to be propagated. ıe advantage of giving these considerations their due share of attention will be obvious to almost ery one; and such considerations are the more worthy of attentive regard, because every season multitude of things are forced into notice which have little beyond novelty to recommend them.

In nearly all departments of the garden the principal general work, at this time of year, is of a utine character. Everything should be done in each to develop and maintain its several tractions.

Growing plants, to whichever class they belong, must have due attention; so also must those hich have matured, or are maturing, their growth. Autumn and winter-flowering things will ell repay whatever care and trouble is taken with them. They are an important item amongst ıe objects of the culturists' care at this season. Various annuals help to create a very effective splay in autumn, both as pot plants and in the open ground; they should have due attention cordingly.

Seed gathering, and the care and preservation of bulbous or tuberous-rooted things, is a matter some importance henceforth for the remainder of the season, and must not be neglected.

Insects in this month are very numerous; every place teems; turn which way we will, our ath is beset with millions of living creatures; and this year especially, Roses and many other lants have severely suffered by the attack of the more injurious. Persons who are very imper- ctly acquainted with the habits of these little creatures, are liable to consider every insect met ith in a garden in the light of a depredator: this is far from being the case, some are quite nocuous, and may be considered as ornaments; others, although they attack our garden-plants, ıeir depredations are too trifling to notice. The following are a few of those most active amongst owering plants during this month:—

Pepper Moth (*Biston betularius*).—This moth is double-brooded; the first appearing in June, nd the second in September. The eggs of the June brood are hatched in July, and continue eding until the last week of the present month, when they go into the pupæ state, burying them- elves in the ground, and the perfect moths appear about the beginning of September. The eggs f the autumn brood are laid on the stems of the Rose trees, and there remain until the following pring, and are hatched about the time of the expansion of the leaves. By the middle of May hey are an inch long, and shortly afterwards go into the pupæ state, the moth appearing about the eginning, or towards the middle of June.

The caterpillars are greyish brown, with a faint red line down the centre of the back. In ome seasons they are numerous; but as they feed only on the *Rose* leaves in the season of luxu- iant growth, the injury occasioned by them is trifling. The perfect moth measures, when the vings are expanded, an inch-and-a-half; all the wings are dirty white, clouded with pale ash, and hickly spotted over the whole insect with black, whence the name "*Pepper Moth.*"

Barred Yellow Moth (*Harpalyce fulvata*).—This beautiful little moth appears in June, and nay be caught in abundance now by beating the Rose bushes. The caterpillar is greenish yellow, vith a white mark, bordered by a darker one on each side. It feeds voraciously on the leaves of he Rose trees, but does not appear to attack the buds. The parent lays her eggs in July, and the aterpillars, which are this month feeding in considerable quantities, will be full fed early in September, and will then enter into the pupæ state, burying themselves in the ground, and forming brown cocoons. The perfect moths appear the following June. The wings measure, when expanded, about an inch across. *First pair*, tawny yellow, with a deep broad band across the centre; *second pair*, pale dull yellow, with darker margins.

Common Vapourer Moth (*Argya Antiqua*).—This interesting little moth does no injury to Rose trees, although, in some seasons, the caterpillars are numerous ; but the season of th feeding being that of vigorous growth, and their continuing but a short time in the larvæ sta render it unnecessary to adopt any means for their destruction. The wings of the male moth, about an inch and a quarter across, when expanded. *First pair*, dull red, clouded with bro and having a white spot near the lower side of the outer edge. *Second pair*, paler, and with spots. The female is without wings, and seldom moves from the place where she issues out the cocoon. Caterpillar blue-grey, with a row of orange and red spots on each side, from head tail, four white tufts on the back, and many other tufts of long loose yellow hairs, with two l black tufts proceeding from the head, and one from the tail, measuring, when full grown, inch and a half long.

Lilac Tree Slender Moth (*Gracillaria Anastomosis*).—This little creature is double broode the first brood of moths appear, on the wing, in May, from the larvæ of the previous autumn, a the second appear in July. The eggs are laid in rows, consisting of from three to a dozen, a are placed chiefly along the nervules on the under sides of the leaves. In five or six days t eggs are hatched, and the larvæ eat into the leaves, mining to the upper surface, where they fe upon the parenchyma, leaving the epidermis, or outer skin, untouched. After they have fed in t way for about a fortnight, they leave these mines, and commence rolling the leaves. The roll fastened on the outside with a few threads, and the ends are drawn close. Within this habitati they remain until they are full grown, eating only half the substance of the leaf ; they then themselves down from the leaves, by means of fine threads, and retire beneath the ground, whe they spin strong cocoons, and in a few days change into pupæ. It is principally on *Lilac tre* planted in shady situations, and on the under branches, that this little moth lays its eggs. T size of the moth, when the wings are expanded, is something less than half an inch.

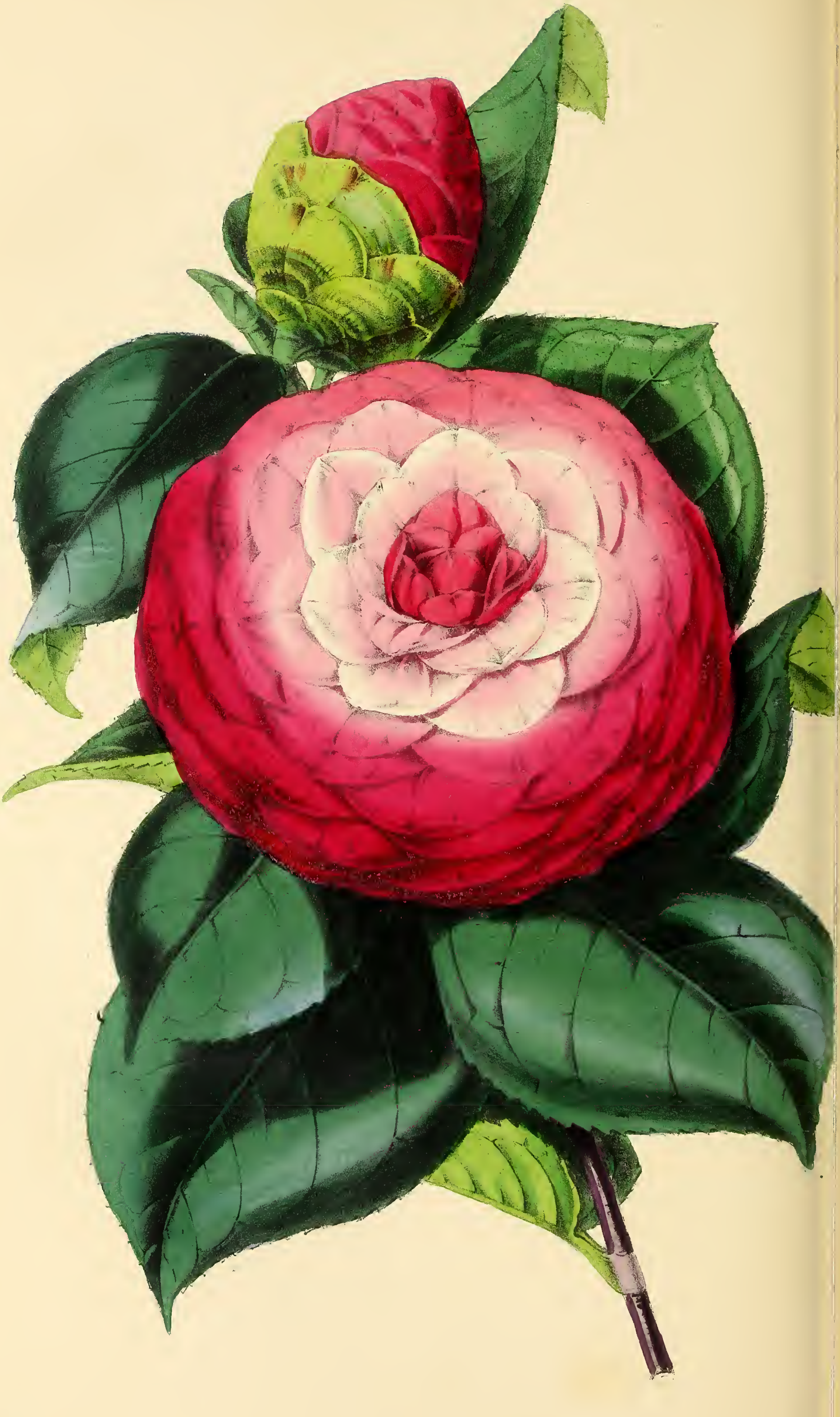
Lilac Beauty Moth (*Pericallia Syringaria*).—This is another very beautiful moth, which fee upon the leaves of the Lilac tree. It is only single brooded. The caterpillars appear about t middle or end of July, seldom in large quantities. They continue feeding until the end September, when they go into the pupæ state ; and the perfect moth appears the following Ju The caterpillar is dark brown, spotted with black, and has a black head. The chrysalis is brow thick, and rather short. The wings of the moth are nearly two inches across, when expande *First pair*, yellowish-grey, marked with three brownish violet blotches. *Second pair*, dull gre with a few black spots towards the edge.

Bridesmaid Moth (*Triphæna pronuba*) attacks almost every kind of plant, and is ve destructive to the *Primula* tribe especially. The wings of this little creature are two inches and quarter expansion. *First pair*, grey, deeply clouded with reddish brown. *Second pair*, yello orange, with a broad black band near the lower margin. This in most seasons is a ve common insect. The caterpillar is a dull brownish green, marked with two rows of black spo down the back. The parent lays her eggs about the beginning of August, and the caterpilla commence their ravages just above the surface of the soil, feeding only in the night, and retiri beneath the earth in the day. In winter they become partially torpid, and may be found coile up, beneath the shelter of large stones, or under rubbish, but as the spring advances they aga commence their ravages, and towards the end of April are full fed ; they then form a cocoo beneath the soil, and become pupæ, and the following July the perfect moths appear.

The Narcissus Fly (*Criorhina Narcissi*), this fine hot season, has no doubt been busy in mo gardens. The grubs are dull yellowish white, about a quarter of an inch long, with a brownis head ; in this present month it becomes full grown, goes into the pupa state in the ground, an the perfect fly appears the following March. They feed upon and cause the bulbs to rot.

The Tulip Fly (*Bibio hortulanus*) greatly resembles a gnat ; it lays its eggs in the roots, i spring, and the young grubs continue to feed upon the roots until the present month. The grub feed in company, and in very dry situations often destroy great quantities of the roots.

Carnation Thrips (*Thrips minutissima*).—This small insect (which is now very numerou destroys the colour of the petals. The only way of preserving the flowers from injury, is to brus off the insects with a camel-hair pencil, as soon as they are perceived.



S.H. del et lith

Camellia Jap. miniata (Low's)

CAMÉLLIA JAPÓNICA, *var.* MINIÀTA.

(Vermilion-flowered Japan Camellia.)

Class.
MONADELPHIA.

Order.
POLYANDRIA.

Natural Order.
TERNSTROMIĂCEÆ.

ENERIC CHARACTER.—*Calyx* five-parted, coriaceous, ounded below with many smaller scales. *Petals* or more, large, jointed at the base, encircling a hy- ynous disk. *Filaments* united below into a crown, ched to the petals. *Anthers* nearly ovate. *Germen* y-seeded. *Style* one. *Stigmas* three. *Capsule* co- eous, pulvinate, or abortively globose, three-fur- ed, three-seeded.

PECIFIC CHARACTER.—*Plant* shrubby. *Leaves* alternate, coriaceous, acutely serrated, acuminate. *Flowers* axillary, or terminal, sub-sessile or pedunculate, single or double.

Var. MINIATA.—*Flowers* measuring about three inches across, shape good, centre well filled up, brilliant crimson, and surrounded by three or more rows of pale rose-coloured petals; and these are again succeeded by other rows of a darker colour, giving the flower the appearance of variegation.

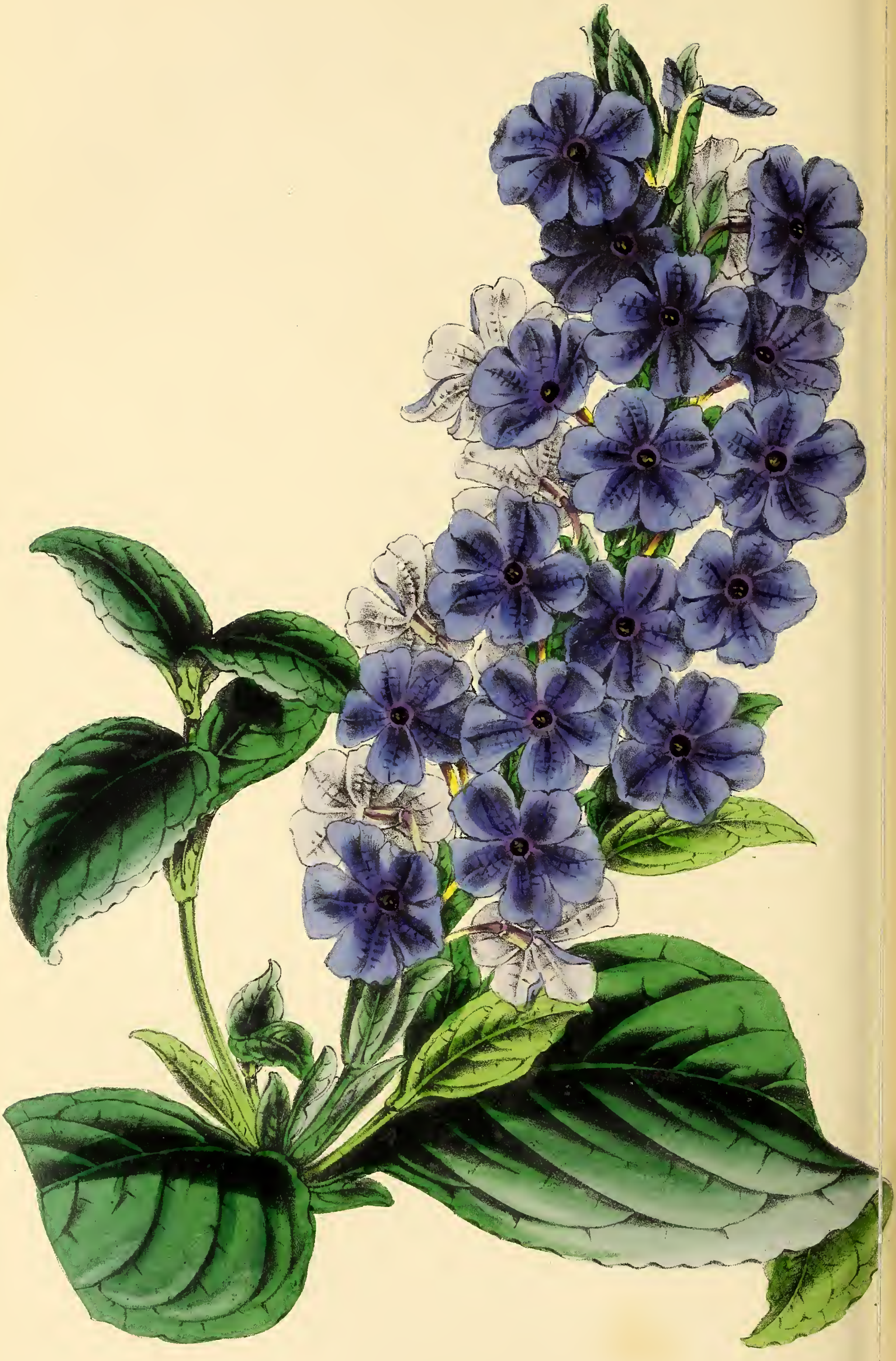
ALTHOUGH the Camellia, as a winter-flowering greenhouse plant, will scarcely nit of a rival, and its cultivation is now well understood, yet it is surprising t, for many years past, scarcely anything has been done in this country, towards improvement of its varieties. From the continent many kinds, from time to e, have been brought; but, generally speaking, these have disappointed the pectations of purchasers, from their defectiveness: in some the petals are mis- pen, ragged, or deficient; in others, where the petals are well formed, the tlines of the flowers are not good; and others, again, are not well coloured, or the rkings are too variable to be depended upon. An apparently very good one s lately, however, been raised by M. Mathot, a nurseryman of Ghent: the wers are said to be nearly five inches diameter, filled up in the middle, and pretty gularly imbricated. The colour is fine crimson, and the foliage is reported also be good. This M. Mathot intends shortly to send out, under the name of *C. ja- nica Mathiotiana.* But the subject of our present plate, although a much smaller wer than the one just mentioned, is, perhaps, the best which has been produced r many years. It was raised by Mr. Low, of Clapton, from seeds saved on a plant *C. myrtifolia*, which produced some imperfect blooms a few years ago; and Mr. ow has every reason to believe that it was fertilised with the pollen of a sickly *ady Hume's Blush*, which stood beside it, and produced very irregular and imperfect wers.

It will be seen, by our artist's very correct drawing, that, as far as respects flower, it resembles *Myrtifolia* in its very finest condition; and when nearly blown, it has some of the beautiful *blush white* of *Lady Hume's Blush* in its cent and many of the flowers, also, are perfectly hexangular, like that variety. colour of its flowers during the early part of the season is the finest crimson, later in the spring, each has three or four rows of petals of a blush white, hav the crimson in the centre. On the whole, it is one of the best Camellias, both a form, regularity, and constancy, that has ever yet been raised. It never, at time, has shown the slightest disposition to sport or run thin.

The habit is also good, having short, medium-sized, dark-green leaves; is abundant bloomer, and sets its flowers as freely as either the old *Double-striped* *Doncklearii.*

Full particulars relative to the culture of this beautiful genus will be found former volumes of our Magazine, to which we beg to refer our readers. drawing was made at the nursery of Messrs. Hugh Low and Son, Clapton, originator of the kind.

The generic name is given in honour of a botanist of the name of Geo Joseph Kamel or Camellius.



S. Holden del. & lith.

Eranthemum strictum.

ERÁNTHEMUM STRÍCTUM.

(Upright Eranthemum.

Class.
DIANDRIA.

Order.
MONOGYNIA.

Natural Order.
ACANTHACEÆ.

Generic Character.—*Calyx* five-cleft, tubular,
ect, skinny, persistent. *Corolla* monopetalous, fun-
el-shaped, tube slender, very long, limb five-parted,
t, lobes obovate and equal. *Stamens* two; filaments
iral at the base; anthers nearly ovate, compressed,
d protruding beyond the orifice. *Style* ovate. *Stigma*
ect, unequal. *Ovarium* spatulate, compressed, two-
lved. *Ovules* solitary, lentiform.

Specific Character.—" A small shrub, four or five
et high, slightly covered with short hairs. *Stem* almost
und, jointed, sending forth four-sided slender
ranches in remote pairs. *Leaves* about four inches
ng, acute at each end, their margins somewhat revo-
ıte and crenulate, smooth and shining, of a peculiar,
reyish-green colour above; very pale, with prominent,
airy, and reticulated nerves and veins below. The
ppermost, or floral leaves, at the base of the spikes,
pproach to the size and figure of the bracts. *Petioles* about an inch long, flattened above, and slightly marginated by the decurrent base of the leaf. *Spikes* solitary, erect, from one to two feet long. *Rachis* sharply four-sided, almost four-winged. *Flowers* large, dark blue, opposite in alternate pairs, which become remote as the spike elongates. *Bracts* adpressed, imbricating, with their ends cuneate-lanceolar, dark-green, acute, ciliate, about an inch long: the lowermost barren and becoming floral leaves; interior two very small, scarcely longer than the five calycine segments, and, like them, linear, pubescent. *Tube* of the corolla slender, pubescent, slightly enlarged towards the mouth, about twice the length of the outer bract. *Segments* obovate, truncate, spreading and flat, equal, very pale below; two filiform barren stamina between the filaments. *Anthers* in the mouth of the corolla, with parallel cells."—Dr. Lindley, *Bot. Reg.*, 867.

Amongst our winter-flowering stove plants, several species of Eranthemum deserve to be particularly mentioned; not so much on account of winter being their blooming season, as for the brilliancy of the colours of their flowers. First, the old E. *pulchellum*, figured Vol. II., page 55, is deserving of particular notice; it is a very free flowerer, and although its foliage is somewhat coarse, yet the intense brightness of its sky-coloured blossoms renders it a desirable plant: *E. crenulatum* and *E. fœcundum* also bear flowers of different shades of purple, and they have superior foliage. Our present subject, which few plants can surpass in brilliancy of colour, is, perhaps, the very best of all.

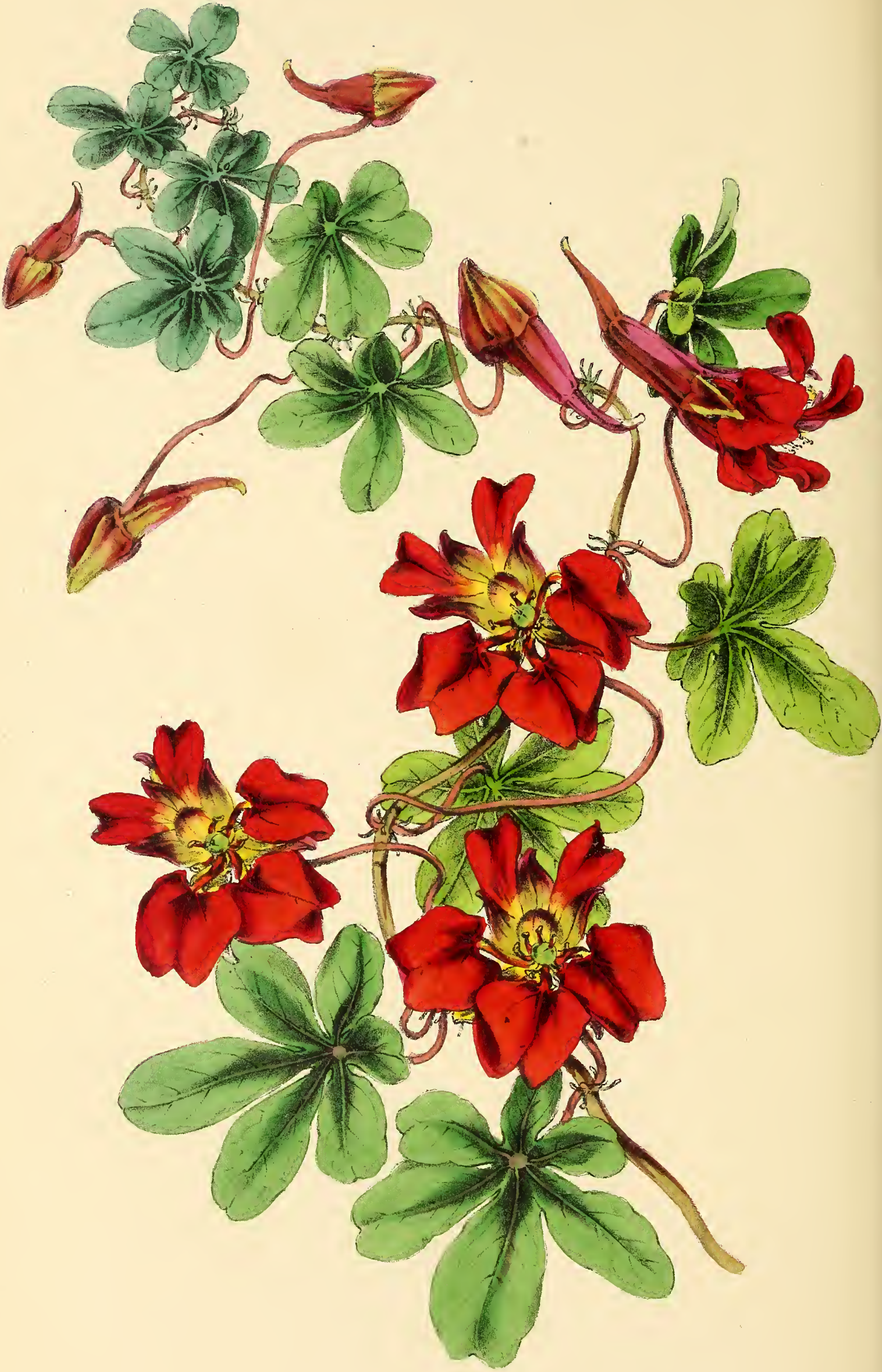
This very fine species was introduced from the East Indies so long ago as 1822, through the instrumentality of J. Slater, Esq., of Newick Park, near Uckfield, who raised it from Nepal seeds. It has since that time been pretty well distributed, and is now found in most good collections throughout the country, and is very deservedly esteemed.

Our drawing was made in February last, at the nursery of Messrs. Henderso Pine-apple Place, Edgeware Road, where it flowered in fine perfection.

It may be grown in a common greenhouse, with the ordinary treatment of tend greenhouse plants; but to have it in perfection, the temperature of a stove is nece sary. If grown in a pot, it must be allowed abundance of pot-room, as it is a robu grower, and if cramped at the roots, the foliage soon becomes ragged and shabb and the flower-spikes are small and insignificant. But, like the *E. pulchellum*, t realise its highest character it should be planted in a border, in good, rich, loam soil. During the time of growth, a very liberal supply of water is indispensable.

It may be increased readily by cuttings, planted either in pots of sand, or ligh sandy soil, and placed in a moist bottom heat; and if, when struck, they are potte off, and allowed plenty of root-room, they will make very fine plants in the cours of one season.

The name is derived from *ear*, spring, and *anthos*, a flower; in allusion, perhaps to several of the species flowering in an early part of the year.



S. Holden del. & lith.

Tropæolum speciosum

TROPÆÒLUM SPECIÒSUM.

(Showy Indian Cress.)

Class.
OCTANDRIA.

Order.
MONOGYNIA.

Natural Order.
TROPÆOLACEÆ.

Generic Character.—*Calyx* five-parted; upper be spurred. *Petals* five, unequal; three lower ones naller, and evanescent. *Stamens* eight, free from ch other at the base. *Carpels* three, sub-erose, idney-shaped, indehiscent, furrowed, roundish. *Seeds* rge, without albumen, attached to the cell, and conrming to it in shape. *Embryo* large. *Cotyledons* vo, straight and thick.

Specific Character.—*Plant* an herbaceous perennial. *oot* a tuber. *Stem* slender, twining, smooth. *Leaves* n long flexuose footstalks, peltately cut into leaflets to the base. *Leaflets* five or six, ovate-lanceolate, cuneate, diverging pretty regularly from the centre, bright green, closely reticulated with purple veins. *Peduncles* axillary, long, flexuose, dull purple. *Calyx* deeply five-cleft, prolonged at the base into a broadly subulate spur, nearly straight, and three times the length of the segments of the calyx; segments ovate-acute, erect. *Petals* five; two upper ones narrow, sessile, fixed in the mouth of the spur; three lower ones on long claws, broad, all the most vivid crimson.

This very beautiful species of *Tropæolum* is another of the valuable introducions of Messrs. Veitch and Son of Exeter. It was discovered by their collector, Mr. William Lobb, in Patagonia, south of the island of Chiloe, who sent home living plants of it in a glass case. It was found growing in elevated situations very near the line of snow, so that there is little doubt but it will prove hardy. Messrs. Veitch had two plants turned out under a wall last September, both of which urvived the last severe and protracted winter without shelter.

It is now blooming in the nursery of those gentlemen, in the open air, and has continued doing so for the last three months.

In habit, foliage, and seeds, it resembles the *T. pentaphyllum*, to which section t belongs; but in point of beauty it is superior, perhaps, to any species previously ntroduced. The flowers are about an inch-and-a-half in diameter, the same size as those of *T. Lobbianum* (figured vol. xi., t. 271), and of the same brilliant crimson-scarlet colour as that species; but from its slender growth, and the smallness of its leaves, it has when in flower a very superior effect.

It was exhibited at the Chiswick and Regent's Park Horticultural Exhibitions, and met with universal admiration; indeed it is one of those plants which are indispensable in a choice collection; no person ought to be without it. It is alone in the possession of Messrs. Veitch and Son, who kindly furnished us with the above particulars, and allowed us to make a drawing of the plant.

PENTSTÈMON M‘ÈWANI.

(M‘Ewan's Hybrid Pentstemon.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
SCROPHULÀRIACEÆ.

Generic Character.—*Calyx* five-parted, with a distant, solitary bract. *Corolla* ventricose, bilabiate. *Stamens* didynamous, with the rudiment of the fifth, which is usually filiform, and bearded on the upper side. *Anthers* separate, usually glabrous. *Caps* ovate, two-celled, two-valved, many-seeded. *See* angular.

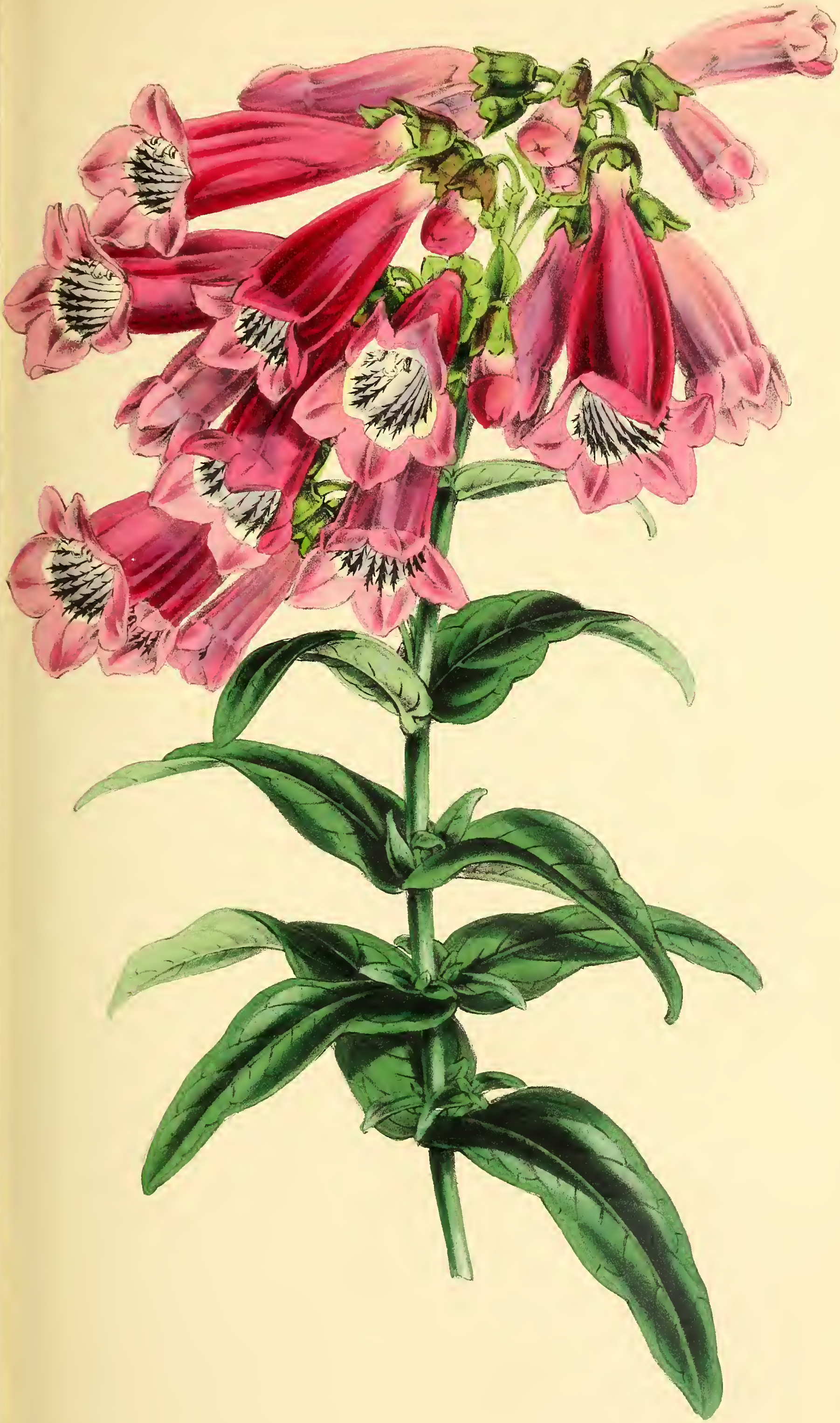
GARDEN HYBRID.

Of this well-known and ornamental genus, every species merits the cultivator attention. All are perennials, with a half-shrubby habit, and will bear the cold our winters tolerably well, seldom suffering unless the frosts are very intense.

Their cultivation is, generally speaking, very simple; they should always b planted in open, dry situations, in the flower garden or open borders, but neve where there is a possibility of their being reached by the drip of trees; for the never thrive amidst excessive moisture, and in this lies the entire secret of the los of so many choice kinds during the winter season.

They require a dry well drained soil; if it is disposed to be loamy it will be n worse, provided it is not too strong, when it should be lightened by the addition a little heath mould, or leaf mould.

Our present subject, *P. M‘Ewani*, is a hybrid, raised two years ago by a gen tleman of the name of M‘Ewan. The stock is in the possession of Messrs. Young Nurserymen, of Epsom, in whose nursery it was flowering profusely last Septembe when our drawing was made. It is of a dwarf bushy habit, a very free bloomer, an makes a conspicuous object on the flower border. It propagates freely by cuttings planted in pots of light soil placed in a little heat, or under a hand-glass in th open air.



del lith.

Pentstemon Mc Ewani.

CHARACTERISTICS OF THE SEASONS.

In a former article, an attempt was made to prove that the four horticultural q ters did not coincide with those of astronomical calculation. Winter did in fact cc mence in the fourth week of last November, which was later than usual—and su lenly, after a most spring-like visitation, redolent of flowers and sweets. The fc ing gardener had, therefore, to task all his energies during the five or six su essive weeks; for the thermometer tables proved, that, from the 27th of N vember, 1846, to the 3rd of January, 1847—both inclusive—the averages of n ht and day, minimum and maximum, were a trifle below 32°, or the freezing p nt of Fahrenheit, the wind blowing for the greater part from some northerly point.

January was a period of gloom, fog, and clouds. There were but five or six s nny days in it—namely, the 11th, 14th, 15th, 26th, 29th, and 31st—yet little r n fell; and here it may be proper to recal the attention of the gardener to the c umstance, that since the extreme glut of rain which fell during three weeks of (tober, and the frequent showers of November, about the third week, we had no g und rain at all. Places differ, but such was the general character of the season i the counties south of the latitude of London.

The coldest days of the year were the 12th and 13th of February, after the g at fall of snow on the 8th and 9th days. This snow continued on the ground f several days, thawing only by solar power, till the 15th, when mild temperature d a change of wind to west by south, completely carried it into the ground.

March was a cold and dry month: a third of it, chiefly at the commencement, s overcast with clouds; the wind was north-east, cool and bracing; the barometer nsiderably above 30 inches. After the 8th the days were generally sunny; wind ctuating; the nights verging to frost; and they became really severe on the 29th, th, and 31st. Nothing could well be more uncongenial than April in its early ys—scuds of snow or sleet, frosty rime, piercingly cold wind; snow occurred ain on the 15th, after which the days became fine, more warm, with occasional estern breezes, and a very few gentle showers. Nature demonstrated its readiness become active: it was only held back by adverse agencies, yet still gave ample tice of inherent energy, which only waited its opportunity. In this state every-ing remained till the 5th of May, when the mid-day temperature, in the shade, se to 60°. The 6th day became warmer, and rather sunny, the evening was cool, d the wind veered from north-east to a southerly point. The blossom-buds of ees were then ready to expand: the perfect maturity of the last year's wood had rovided a profusion of these fruitful organs, some of which had expanded, articularly those of the Pear among fruit-trees, and the crimson-blossoming *Ribes* mong ornamental shrubs. Rain was still very deficient; but the want of it in olume sufficient to reach the deeper rooting plants, was the less felt in consequence f the very cool state of the weather.

On the 7th—a day worthy of record—the sun rose beautiful among gorge clouds, the air was balmy, a gentle dew (a rare meteor throughout the spring) clot the herbage—all these, and the sweet song of the lark, gave earnest and assura that winter influences had passed away, and given place to active spring. At no a soft and gentle rain—the first of the kind—commenced: it soon passed aw but being followed up till the 13th by showers, by alternations of shade, and oc sional gleams, the face of all nature underwent an entire transformation. The fr trees became masses of garlands—grass, corn, flowers, in field and gardens, all rus forth. Never was metamorphosis more complete; lost time was redeemed, and, l the rain, gentle as it was, continued till the 25th, with a medium temperature, ev vegetable product would have been in advance.

As a check, however, one of those singular transitions occurred, the cause which our philosophy cannot even dream, much less fathom. The 23rd day prov oppressively hot and sultry, distant thunder was heard in the south-east, but no ra followed. On the contrary, a glaring sun ruled by day till the end of the mont the temperature rose, about noon, to 68°, 74°, and in some places to nearly 80°, a the nights were as warm as those of July, *i. e.* 58° to 66° and 70°, and this parchi arid state of weather continued till the 6th of June.

"A cold May," is the old proverb; its reverse has ever been the prognostic disaster, and the experience of the present year has established the doctrine of o forefathers! The plants of the vegetable garden began immediately to suffe blossoms were rendered barren, those of the strawberry were visibly affected, as May and June, 1846, the fertile organs becoming black, instead of enlarging. App bloom was scorched, and thus the anticipated crop was negatived to a degree th reduced it far below an average. As to the flower-garden, every part lost its gra and beauty; and that not only by the flagging of the plants, but by the seve species of *Aphides*, or green-fly, that took possession, each of its peculiar a favourite prey. Thus, any high degree of temperature—especially if accompani by a powerful sunshine—prior to midsummer, may be considered as an agent sterility.

There is one phenomenon of singular interest which ought to be noticed. T trees, the Oak and the Ash, are supposed by electricians to be in contrary states electricity; or, in other words, if one is positive, the other will be in a negati condition. The terms are sufficiently dark and inconclusive; they evince our re ignorance of causes; but such as they are, we employ them. If then it be admitte that these trees are antagonist—the one attracting that which the other repels—it wi be philosophical to conclude that they may be taken as indices of the existin condition of the earth and atmosphere. Public attention has of late years bee excited by the remarks published in newspapers concerning the prognostics of th coming summer, afforded by the earlier or late developments of these trees. If, it said, the Ash take the advance, the season will be rainy; if, on the contrary, it b tardy, and the Oak take the lead, the summer will be warm and dry.

During three seasons we have noted, and called the attention of observing p sons to these indications. In 1842, 1844, and 1846, the Oaks were the earlier, a those summers were hot and dry. In 1845 a wet season succeeded to the e ier leafing of the Ash. Let us now retrace their course during the late spring. N twithstanding the rigour of the weather, which extended far into April, the Ash g e indication of speedy expansion; the Oak was more tardy: hence a showery s son was anticipated. As warmer temperature approached, the expansion of the l ves of both trees promised to be simultaneous. So soon, however, as the mild r ns came, that is, as before shown, about the 7th to 10th of May, the race was no l ger equal; the Oak took the lead generally, and although it was evident that there v great irregularity, some trees being a week or more in advance of others, yet t Ash was effectually distanced. The admirers of woodland scenery, especially t se who have studied the characters of trees, will be able to retrace the circum-s nces just related, and therefore can recollect the prevailing weather of the entire s ing and summer. Certain it is that rains and showers have fallen opportunely, t ugh scantily; but as a whole the year has been dry. With the exception of a t nder storm, July has been a prodigy of splendour; and thus the only month of t twelve which admits the term *periodical*, as applied to its meteorology, has nessed a complete exception to the rule.

As a great deal has been said in all publications on horticultural and rural airs, upon the prolificacy and abundance of the *Aphides* or green-flies, it is but just observe, that the Roses appeared to suffer in no degree so severely by them as ey did in 1846: *then* not a bud fairly expanded in the spring—all were disfigured. e infliction has fallen most severely upon currant-trees and beans; the latter ve been smothered by the black Aphis or dolphin; the only entire exceptions tnessed by the writer were found in two large field-breadths, in rows 27 inches nder, kept sacredly clean by unwearied hoeings till, in due season, turnips were wed between the ranks: these beans were beautiful, and have been harvested with rich and most abundant crop on them.

There is no particular rule without exception; but there are many valuable neral rules which admit of little deviation: thus, *tillage* to a great depth secures ple moisture to counteract the effects of aridity in the driest seasons; *good ainage* acts in accordance, although it removes superfluous water; *cleanness* not ly promotes vegetation by destroying intrusive weeds, but it disturbs grubs and e larvæ of insects. All the operations of high, prolific gardening, of surface lture, and of order, depend upon these general principles.

We are the less scrupulous to introduce these general remarks, although they viate from the strict floricultural character of the Magazine, because they bear upon e philosophy of scientific culture, whatever be its object.

In no one thing is the astonishing variation of conditions more apparent than in e thermometric readings off and registers of different local establishments. As a atter of curiosity, and also with a view to encourage comparative experiments, the following series of three daily observations in as many situations are copied, and tis brought before the eye at a glance:—

State of the Thermometer as observed during the week ending July 28th and 2h, 1847, in three different situations.

1. AT CHISWICK.				2. AT CROYDON.			3. AT OLD KENT ROAD.			
	Max.	Min.	Mean.	Max.	Min	Mean.		Max.	Min.	Mean.
Friday 23	74	44	59	71	56	63·5	Thursday 22	72	60	66
Saturday 24	76	53	64·5	66	55	60·5	Friday 23	72	53	62·5
Sunday 25	67	46	56·5	65	59	62	Saturday 24	72	52	62
Monday 26	75	45	60	69	55	62	Sunday 25	68	57	62·5
Tuesday 27	81	50	65·5	72	56	64	Monday 26	72	55	63·5
Wednes. 28	77	57	67	72	58	65	Tuesday 27	76	53	64·5
Thursday 29	88	54	71	79	61	70	Wednesd. 28	75	55	65

These tables, extracted—No. 1, from the *Gardeners' Chronicle* of Saturday, 3t, and No. 3 from the Regent's Park register, by Mr. White, who resides in d Kent Road; will exhibit the great differences that exist in localities not very rem. No. 2 stands intermediate, and proves, that at 10 miles south of London, the lowt temperature by night, and the maximum by day, exhibit none of those extres which characterise the "readings-off" of the Chiswick thermometers. We ts obtain convincing proofs that solar heat and terrestrial radiation produce varyg effects, and that much dependence cannot be placed upon local tables. In garde, a thermometer ought to be laid on the grass, another some distance over it, a thd with a muslin shade strained some distance over it; and, thus proceeding, a few me facts may be ascertained.

ON THE CULTIVATION OF SOME OF THE PLANTS BELONGING TO THE GENUS IXORA.

Those who have been, or are at the present time, successful in the managemet of the plants constituting this splendid genus of stove plants, can scarcely beliee it credible that the Ixoras, by the great majority of culturists, should be regardeds plants of difficult cultivation. Yet such is the fact; for, go where you will, al except under the management of some of the principal contributors to the met-politan exhibitions, you will rarely see a plant well grown, and still more rarely wl bloomed. Now, the reason of this is, not so much the result of want of attenti, as over-care. Somehow or other the general, but at the same time most fallacio, opinion is, that the Ixoras are plants of very delicate constitution, requiring vy tender treatment at all times, and in every situation; and hence, like delice children, are so nursed and coddled, as, ultimately, to be nursed to death. Unft ately the Ixoras, like many other good plants, have many enemies, and are so n ch infested with insects of all kinds as literally to be worried to death by them. l spider, thrips, aphides, mealy bug, brown scale, white scale—in fact, every k d of insect which infests the hot-house—are at home on the Ixora; and to eradi- c these the plants are so scraped, scrubbed, sponged, and doctored, as to be almost c stantly under treatment for that purpose, by which they are so much injured as r ly to produce a healthy branch or entire leaf; and consequently, as the produc- t of roots is governed by the production of branches, the plants are generally short o the former, and are very susceptible of injury from that great bane of good dening, injudicious watering.

In the spring of the present year, the writer visited the collection of a gentleman o had some very beautiful plants of *Ixora grandiflora*, several of which, though by means large plants, would have produced from twenty to thirty fine heads of om, had it not so happened, that a careless man was set with a short stubby sh to wash the mealy bug from the points of the shoots around the bloom buds, which they generally congregate, and so effectually did he execute his duty, as her to totally destroy, or so much injure them as to render the plants of no use atever for the season. Thus, it will be seen that, apart from the plants being ated unnaturally, that is, too much nursed, the great enemies of progress are ects; which either must be thoroughly eradicated when the plants are young, or a constant source of trouble and vexation ever afterwards. Now, we do not say is impossible to eradicate the mealy bug and scale on large plants; as hot water a temperature of from 100 to 150 degrees, thrown on the plant in the open air, rough a fine syringe, when the plants are in a comparatively dormant state, will do uch to destroy them, as will also "Hereman's Dilutium;" but when the young ood gets into the interstices of the bark, and among the young shoots and flowers, is next to impossible to get rid of them.

From the preceding remarks it will be seen how necessary it is to guard against sects; and those who are about commencing the cultivation of these, or any other ove plants, had better give gold for young clean plants, than even accept larger ants at a gift, however valuable they may be, unless they are perfectly clean. hen a collection is once clean, there is some pleasure in its management, but to constantly bug-hunting is a most irksome task. Plants purchased from the rseries should also be treated with suspicion; indeed, it is a good plan to make l plants perform quarantine until you are convinced they are quite clean; and for is purpose they should be placed in a pit or corner of the stove, and closely atched, until you are quite sure they are free from insects.

The *Ixoras* are all natives of tropical climates, most of them coming from the ast Indies and China, and some of the more recent acquisitions from Borneo, va, &c. We have no positive information as to the altitudinal position which ey occupy in their native forests; but judging from the treatment which best suits em in this country, we suspect they abound more as undergrowths in comparatively low situations than they do on the open plain, and hence they ought never to have been treated as dry stove plants, but during the growing season, should have been kept in a situation where, while they had a free circulation of air, the atmosphere was at all times in a comparatively moist or saturated state. In this country, during the time they are making their growth, no situation suits them so well as that of a good dung-pit or frame, where, with a gentle bottom heat and a free admission of air both night and day, they grow in a most satisfactory manner. Indeed, after all that has been written about the different systems of hot-water and hot-air heating, not even excepting that modern discovery yclept "Polmaise," which modern theorists and would-be philosophers pronounce the ne *plus ultra* of perfection as a means of heating for horticultural purposes, we have yet to discover a plan which is superior to the pristine dung-bed or pit, and by means of which so many plants can be grown to such perfection as they can by its influence. Go to any of our first-class cultivators, even those who have all the appliances of hot water and "Polmaise" to boot, and ask them the best means of heating a pit for plant-growing, and they will recommend the old dung-lining; inquire the best place to recover a sickly plant, and they will reply—the dung-pit; thus proving that after all the dung-pit, when properly managed, is the best place in which to manufacture first-class productions of either plants or fruit.

We do not say that good plants may not be grown without dung-heat, as that would be contrary to fact; but we do say that, however fine the plants produced without its aid may be, the same cultivator, by properly directing the influence of fermenting dung, would produce much finer things; and so thoroughly convinced are we of this, that, notwithstanding the extra trouble, we should always recommend a pit and frame or two to be heated by dung, in which to perform some of the more delicate operations of plant cultivation.

With these preliminary remarks we shall proceed to the cultivation, in full detail, of *Ixora grandiflora*, or *coccinea* as it is commonly called, and then offer such remarks on some of the best of other species as their proper treatment may render necessary. The *Ixoras* may all be propagated by cuttings of either the young or old wood, either of which will strike root readily in a close moist dung-heat of 70°; but when it can be procured, as in the case of cutting large specimens down, the old wood is to be preferred, making choice of those short, stubby, and comparatively stunted branches which have several joints crowded together, and which will produce five or six branches where a young shoot would only produce one or two. Cuttings of this kind have generally latent buds at the base or collar, which, after the plants are well established, throw shoots from beneath the soil, and therefore make very dwarf and compact plants, just such as are required for converting into first-class specimens. The *Ixoras* may also be propagated by grafting, a practice pursued, especially among the Continental nurserymen, to increase new and expensive kinds; but the plan is a bad one for the cultivator, inasmuch as he loses all chance of shoots from the base of the plant, the importance of which has

b n stated above. Such plants purchasers should avoid, as they should, also,
p nts propagated from cuttings which had only one joint; that is, when cuttings
a scarce, some people, for the sake of getting more stock, instead of striking the
c tings by the usual plan at a joint, strike them in the internode between the
j nts, by which means a branch with six joints may be converted into five cuttings
i tead of three, as would be the case when two joints are retained to each.

Supposing then that you have "caught your plants" and that they are of the
ht kind, the next thing will be to prepare a dung-bed, or pit, precisely in the
ne manner as you would for growing melons or cucumbers; of course omitting
soil, and placing a thin layer of cinder ashes over the dung instead. Then
cure some good strong turfy-peat, such as is found on Wimbledon Common, and
ving divested it of the very sandy portion at the bottom, break it into pieces of
m half an inch to an inch in diameter. To this add plenty of good gritty sand,
th some charcoal and potsherds, broken small, and mix all well and intimately
gether. Then take the plants, and supposing that it is the 1st of February, and
at they are well established in 48-sized pots, remove them into 24's, using the
ove compost, and making the soil tolerably firm around the old ball. After
is they must be placed in the frame, with the pots partly plunged,—of course,
arding against burning, or indeed over-heating the roots. Keep the tem-
rature at about 60°, with a little air, but allow it to rise to 70° in the day
ne, or to 80° or even 90° on bright sunny days; shutting the pit up early in
e afternoon, but always giving a little air throughout the night. In such a
tuation the plants will soon begin to make root, and as soon as they appear to be
stablished stop each shoot, by pinching or cutting out the leader, and either peg or
e them down, horizontally, over the surface of the pot. This treatment will
duce them to push several shoots from each branch, as well as from the base of
e principal stem, and by repeating it several times throughout the season will
ake neat compact plants. By the end of April the plants will require to be
emoved into small 12-sized pots, using the same compost, and by the middle of
uly they may be put into 8 or small 6-sized pots, which will be the last pot
r the season. After the last shift the plants should not be stopped any more, but
ather be allowed to ramble until they go gradually to rest in October, the object
eing to produce roots ready for action in the following season. Manure water, in a
eak and clear state, must be applied to them, about once in ten days, throughout
he growing season, but more especially where the pots are tolerably full of roots.
rom October until the following spring they may be kept in a cool part of the
tove, guarding against insects, and keeping the plants tolerably dry.

If first-class specimens are desiderated it will not be advisable to allow the
lants to bloom until the third season, and hence, in the second season, they may be
started early again, so as to give them the advantage of a long season of growth.
Prepare a dung-pit, and start them, in the same manner, about February, and as
soon as they show signs of growth stop each branch boldly in, and tie them out as

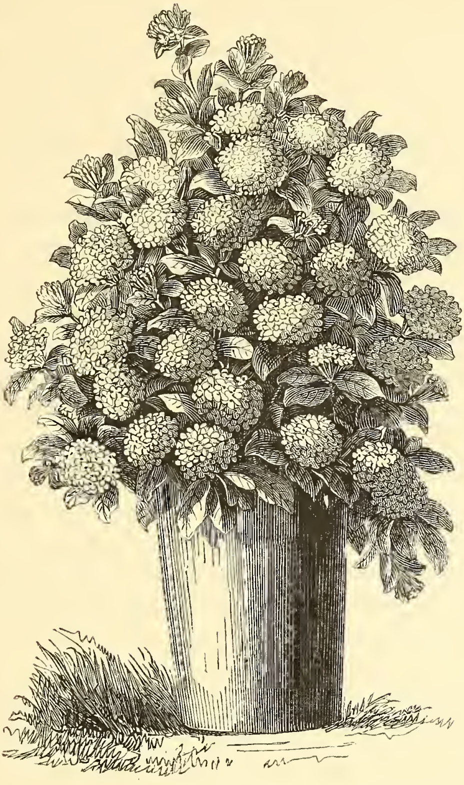
in the preceding season. When the plants have made shoots about an inch lo
re-pot them into 4-sized pots, still using the same soil, with the charcoal and potshe
in rather larger pieces. After this shift, the pots should be plunged about half th
depth, guarding against over-heating, and also against the ingress of wor
Maintain a lively growing temperature, by renewing the linings of the pits wh
necessary, and keep a moist growing atmosphere. Allow the plants to grow wil
throughout the summer, and by giving plenty of air, both night and day, a
abundant room, with liquid manure when necessary, encourage them to make stro
sturdy growth. The plants, if allowed, will produce some very fine flowers t
second season, but as that would retard their growth to some extent, it is advisa
not to allow them to bloom until the third year.

By the middle of August the plants, if they have been properly managed, w
be large and strong ; but as you must endeavour to get them as bushy as possible
will be necessary to cut each shoot in again, and depress the side branches so as
induce them to break from the old wood. These will be the blooming shoots
the third season, and therefore to get them strong, so as to ensure their setti
bloom buds, they must be exposed to as much light as possible, and at the sa
time receive every aid which practice can suggest to make the young growth stro
and healthy. Maintain a brisk growing temperature, so as to have a thorou
circulation of air at all times. As soon as you perceive the shoots begin to set th
bloom, which may be known by the points of the shoots ceasing to elongate, a
becoming full and large, begin gradually to lower the temperature so that throu
the winter they may be kept at a temperature of from 50° to 55° or 60°.

In starting them in the spring of the third year it will be necessary to give t
plants a small shift, and introduce them to stove heat from the middle of Februa
to the first week in March, that is, if you want them to bloom in May and Jun
but for later blooming, they must be in a low temperature until April or Ma
During the blooming season supply them liberally with liquid manure, but take ca
that it is neither too strong nor too muddy. A very weak solution of nitrate of so
imparts a very healthy appearance to the plants if applied occasionally, and
imagine gives colour to the flowers.

The annexed vignette gives a representation of an *Ixora grandiflora* in the thi
season of its growth, and was taken from a plant in the collection of James Coo
Esq., of Brooklands, Blackheath Park, whose gardener, Mr. Ayres, showed it
several of the metropolitan exhibitions, where doubtless some of our readers m
have observed it. Unfortunately, our drawing only shows a part of the plant a
flowers, as it was quite round, and equally well covered on all sides. It produc
upwards of sixty heads of bloom, and had between thirty and forty fully expande
trusses when our sketch was taken. Such a plant we consider well repays a
attention which may be devoted to its cultivation, as it is not only a grand object
itself, but continuing to bloom for several months, fills a place very worthily in th
stove, and charms us for a long time.

After blooming towards the end of August the plant must be again cut in, and eive the same treatment as in the preceding autumn. Give a small shift at the



me of introducing them into heat, every spring, and do not forget the weak manure ater. So long as you can keep the plants shifted, they will continue to bloom; but hen they get into the largest-sized pots they may be regarded as mere cumberers the house; and after blooming, had better be thrown away. Such is the treatent pursued uniformly with exhibition plants of *Ixora grandiflora*. They may e bloomed in a much smaller state, indeed a dozen or two of small plants, bloomed 48 or 32-sized pots, are very useful for decorative purposes, especially where lants are required for the drawing-room, and may be had with very little trouble.

Next in importance to *I. grandiflora* comes *I. crocata*, a plant of smaller growth nd very profuse habit of blooming; in fact it blooms so profusely, that the chief ifficulty in its management is to get the plants to make good strong shoots without looming. Pursue the same treatment as with *I. grandiflora*, and keep the bloom inched out until you get strong well-established plants, which will require two or hree seasons to accomplish satisfactorily.

I. Bandhuca is much like *I. grandiflora*, but of more rigid habit, and is neit r so good nor so easy to cultivate. *I. rosea* is very pretty and distinct, though t such a general favourite as the preceding, and may occasionally be caught wit a very fine head of bloom, and then is very beautiful. *I. odoratissima*, a plant f t bloomed in this country by Messrs. Lucombe, Pince, and Co., of Exeter, produ d very large but loose trusses of deliciously sweet flowers, which make it v y desirable; and *I. acuminata*, the white kind shown several years back at Chisw k by the same gentlemen, is also very distinct and desirable, but a very delic e grower.

Of new kinds, *I. hydrangæformis*, the new species from Borneo, introduced y Mr. Low, jun., of the Clapton Nursery, was shown, though not fine, in a sufficien y favourable state, by Messrs. Lucombe and Co., at the Royal Botanic Societ s Exhibition in July, to show that under proper management it will make a first-cl s plant. It is a plant of very strong habit, and grows very freely, and we doubt t in a few years will be shown so as to merit the specific distinction of Hydrangea-li .

A very pretty species, resembling *I. crocata*, but much superior both in flower a d habit, was shown by Messrs. Veitch and Son, of Exeter, at Chiswick, in July, a d was called *I. Javanica.* It appears to be a very free-growing kind, and may e regarded as a decided acquisition.

All these kinds require nearly the same treatment, of course making allowa e in shifting for those plants of delicate habit, and not potting them so heavily as t e free-growing kinds. Above everything guard against insects, and then success s certain.

CULTURE OF THE GENUS HAKEA.

Of this genus of desirable New Holland plants nearly sixty species have be introduced, all of which are ornamental, and not difficult to cultivate. The best s l is a mixture of two parts heath-mould, and one part light sandy loam, brok together, but not sifted.

In potting, drain well with plenty of broken potsherd, and mix a few pieces f freestone, about an inch square, with the soil. These, by retaining moisture, w prevent the roots suffering immediately from drought, which they are very liab to do. Do not cramp the roots in small pots, for they invariably suffer when th is the case. Over-watering and drought are two extremes which these plants cann endure. The roots being tender, water must be administered at all times with car especially in the winter; drought, however, is more injurious than over-waterin

It is advisable not to follow the general usage of greenhouse plants, in placin them out of doors during the summer season, for three reasons:—

1st. They are liable to suffer from drought by exposure to the sun and air.

2nd. They are liable to perish from over-moisture by rain.

3rd. The roots are liable to be injured by the entrance of worms into the pots.

Propagation is effected both by cuttings and seeds. Cuttings are made of the ri ned wood; plant them thin and shallow, in pots of fine sand. Place the pots on a y, cool floor, and cover them with a hand-glass; water with great care, and in al t two months they will have formed roots. If the pots be plunged in a hot-bed, or laced in a moist heat, success is very precarious.

When the cuttings are rooted, pot them off in small pots, and again place them in similar situation and under a hand-glass until they have recovered, and begun to row; then by degrees expose them to the air of the greenhouse.

Sow the seeds in March or April, cover thinly with light sandy heath-mould, ar place the pots in a cool dry part of the greenhouse, where they will be shaded bo from sun and wind; cover each pot with a piece of slate or glass, or cover th n with a hand-glass, to prevent the soil drying too much, and by the following au umn they will be up. When grown sufficiently, transplant them singly in small po , and place them under a hand-glass, as recommended for potted cuttings, until th have begun to grow.

THE GENUS GLYCOSMIS.

AMONGST the good old-fashioned inhabitants of our stoves, which of late years ha e been displaced, to make room for new plants of a more showy character, m be mentioned the various species of *Glycosmis*. In how few collections any of th e are to be found! indeed, it is not improbable but some of our readers may h e altogether forgotten them; and yet, they are handsome good-sized shrubs, with d green, shining leaves, disposed in threes and fives on a petiole; it is true the fl ers are small, colourless, and inconspicuous, but this is partly compensated by th r growing in axillary panicles of considerable size, and besides, they are exquisi ly fragrant; and in addition to the above qualities, the plants bear (especially *G. c ifolia*) a profusion of small, red, sweet-tasted berries; they are, therefore, a gether certainly not to be despised as objects of beauty and interest.

There are but three species, at present, known to us; of these *G. pentaphylla* a *arborea* are natives of Coromandel and the Mauritius, where they grow in the w ds to twenty feet, or more, high, and become loaded with fruit, about the size of o wild cherry, which is there much eaten by birds. *G. pentaphylla* was brought o r to this country about the year 1790, and *arborea* in 1796. *G. citrifolia*, or, as i often called, *Limonia citrifolia*, is a native of China, where it grows from four t ix feet high; it was introduced about the year 1800. They all require the heat o the stove, and are very easily managed.

The best soil in which to grow these plants, is one-half rich loam, from a pasture, o -fourth leaf-mould, and one-fourth very rotten dung; mixed and broken together, l not rendered too fine. In potting, use pots rather large than otherwise, as the plants do not thrive well if cramped at the roots or often shifted. Immedia ly after being placed in larger pots, it is advisable to subject them to an increas of temperature with considerable humidity, until they have begun to grow freely.

They always require a good supply of water at the roots, but soon suffer i it stagnates; therefore give plenty of drainage, and, during the season of growth, t y should be freely syringed over-head every fine day; this will greatly facilitate t ir development. It is also very advantageous to water them, once a week, with t n liquid manure.

Air is an indispensable requisite at the time the plants are in flower, for un ss they are exposed in some degree to this, but few fruit will set.

Propagation is effected by cuttings, layers, and seeds.

Ripened cuttings are taken off any time of the year, except when the yo g wood is forming, and planted in pots of sand; plunge in heat, and cover wit a hand-glass. In six weeks or two months they will be rooted.

When they are well rooted pot them off in the soil recommended before, but d one-fourth of heath-mould to it, on account of the plants being small, re-plunge th n under glass, until they have again begun to grow, afterwards expose to a little r, by degrees, until they will, without drooping, stand amongst the ordinary plant n the stove.

For layers—branches merely pegged beneath the surface of the soil, with t any incision, will strike root; but their emission is facilitated by an incision be g made on the upper or under side of the branch; this incision should be made h lf way through the branch, and an inch long, sloping upwards.

Pots open on one side, from top to bottom, for the more ready introduction o a branch, filled with soil, and elevated on sticks to the desired height, are very c venient for layers of both this and other plants.

Seeds are sown in spring, and when up are potted off, and treated as rec mended for cuttings.

NOTES ON THE MANAGEMENT OF HERBERTIA DRUMMONDI

All the species of Herbertia are hardy greenhouse bulbous plants, and flo r well in the open air during summer. *H. Drummondii* will endure the cold of r ordinary winters very tolerably, but is liable to perish from over moisture; i s therefore always better to include it amongst pot plants, which in winter are shelte l.

The proper season for potting is just before the bulbs begin to grow, after e season of rest. Turn them out of the pots, separate the bulbs from the soil, a d after selecting the finest, replant them in small pots, four in each pot. The pro r soil for their growth is equal parts of light sandy loam, heath-mould, and sa l, mixed and broken together, but not sifted. After being potted, do not subject th n to any heat, until they have grown considerably; for if this be done, they often g v w dly, and of course do not flower so fine. Any light airy situation will answer, w re they will be protected from rains and frost.

When the leaves are considerably advanced, and the pots are beginning to be fi d with roots, re-pot, and place them in a greenhouse or frame, where they will fl er finely, requiring nothing more than the ordinary attention of hardy greenhouse p ts, until after the flowering season.

When newly potted, and until they have formed good roots, water very sparingly; b as the plants advance towards flowering, increase the supply, and when in full b m, water liberally. After the flowers fade, again diminish the quantity; and w n the leaves become yellow and ripe, wholly discontinue it until after the season o est.

As soon as the leaves are dead, place the pots in a cold situation again, where t y will remain perfectly dry until the growing season returns, which will be in a ut three months after the tops are decayed.

As stated above, the species will thrive and flower well, if planted either in a f ne or in the open border; but if it is grown in the latter, it will be necessary to t n a flower-pot over the bulbs during the season of rest, to protect them from wet. ien planted in the borders the bulbs should not be disturbed oftener than two or t ee years. Propagation is effected chiefly by offsets, which are produced abun- tly; but occasionally it matures seeds.

Sow the seeds thinly in light soil at the same time as tender annuals, and plunge pots containing them in heat, to bring them up as early as possible; and when place them in a cooler and more airy situation, to prevent their growing weakly.

Until the seeds begin to grow, administer no water, unless the soil becomes y dry. As the plants advance in growth increase the supply; but when the iage begins to change colour, diminish the quantity until the leaves are wholly ad.

When the leaves are totally dead, and before they break off, turn out the soil m the pots, select all the bulbs, dry them on a shelf or other situation, and put em in a paper bag until the season for planting again returns.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANIC PERIODICALS FOR AUGUST.

Abelia floribunda. A greenhouse plant, bearing its lovely flowers during the spring mon s, and continuing a long time in great beauty. The species has attracted much attention, and has l n exhibited at the horticultural shows with the generic name variously written, and someti es corrupted into *Russelia*. It grows between two and three feet high, and the flowers are tubu r, from two to three inches long, of a purple red, and are produced at the extremity of the branc s. —*Bot. Mag.*, 4316.

Æschynanthus speciosus. This is unquestionably the most beautiful species of Æschynan us yet known to us. Mr. Thomas Lobb, from whom the seeds were received by Messrs. Veitch d Son, detected this plant in Java, on Mount Asapan, near Bantam, attached to the trunks of fo st trees. It requires the same treatment as tropical Orchidaceous plants. The flowers are betw n three and four inches long, full orange, with the extremity scarlet.—*Bot. Mag.*, 4320.

Cattleya bulbosa. Brazil is supposed to be the parent of this exquisite little species, b it is not certain. It belongs to the same section as *C. Aclandeæ*, from which it differs in its ha g much larger lateral lobes to the lip, a very differently formed middle lobe, and flowers of q e another colour. It may also be compared with *C. pumila*, which should be placed in the s e section. This very pretty epiphyte should be either fastened to a block of wood, with a l e sphagnum, or placed well elevated upon a pot filled with one-third of broken potsherds, and e remainder with the rough fibre out of peat soil, and half decayed leaves, in nearly equal porti s, and afterwards placed in the lightest, coolest, and driest part of the Orchid-house. t requires but little water, even in the growing season, as plenty of moisture for Cattleyas y always be obtained by pouring water over the shelves and footpaths; as for the smaller ki s, they should never be syringed overhead. It is best increased after it has begun to grow, and t, as is generally done, when in a dormant state.—*Bot. Reg.*, 42.

Dryandra carduacea angustifolia. A Swan River species of *Dryandra*, discovered by . Drummond, and reared in the Royal Gardens of Kew, from seeds sent by that indefatigable d most successful botanist. It flowers in the spring months.—*Bot. Mag.*, 4317.

Forsythia viridissima. This beautiful Chinese plant Mr. Fortune describes as a decidu s shrub, with very dark green leaves, which are prettily serrated at the margin. A deciduous sh b easily increased by cuttings and layers, and bearing a profusion of bright yellow blossoms all o r the shrub.—*Bot. Reg.*, 39.

Gastrolobium villosum. This fine orange-flowered shrub is a native of the Swan Ri r colony, where it would seem to be common. It was first found by Mr. James Drummond, fr n whose specimens it was described by Mr. Bentham. Its introduction to notice, in the garden f this country, is owing to Messrs. Low and Co. It promises to be a very pretty greenhouse pl , and will require the same kind of treatment as Chorozemas and similar plants. It should e potted in a mixture of sandy loam, peat, and silver sand. It may be increased by cuttings, the best plants are raised from seeds, which in most species are freely produced when the pla s attain size.—*Bot. Reg.*, 45.

Liebigia speciosa. This is a lovely plant, well deserving the name of "*speciosa*," and, in s genus, equally worthy to bear the name of the most distinguished chemist of the present day. t was originally discovered in Java by Blume, and was imported from that island through the me s of that zealous collector, Mr. Thomas Lobb.—*Bot. Mag.*, 4315.

Lonicera discolor. This is a fine hardy deciduous shrub, from four to six feet high, a nat e of India, from whence it has been recently introduced through the East India Company. It p duces abundance of greenish white flowers about the beginning of June, and in September a l October it has a profusion of large black berries. It is easily increased, either by seeds or cuttings of the half ripened wood, treated in the usual way, and grows freely in any common s l which is not too poor.—*Bot. Reg.*, 44.

Leucothoe pulchra. A pretty plant, received at the Royal Gardens of Kew, from M

M oy of Liege, as a *Vaccinium* from Caraccas. It flowers, in a cool greenhouse, in May, and is eq lly handsome in foliage and in flower.—*Bot. Mag.*, 4314.

NOBRYCHIS RADIATA. A native of stony hills, in the region of Caucasus, common about Ti s, flowering in summer. It is a showy plant, conspicuous from its racemes of white flowers, wi a central yellow spot. In our gardens it is a hardy, herbaceous perennial, which grows about or foot in height, and succeeds best when planted in a rich sandy loam, and in a situation which is ther dry, particularly during winter. It is increased by seed, and the young plants will not fl er before the second season.—*Bot. Reg.*, 37.

PHRYS TABANIFERA, and OPHRYS FERRUM EQUINUM. These two species of Ophrys were co cted by the late Dean of Manchester, were figured a day before his death, and were to have b illustrated by himself. His brief and imperfect memorandum tells us that *O. tabanifera* was fo d by his collector Vrioni, near Clarentia, a low and swampy place. *O. ferrum equinum*, so c ed because of a horse-shoe mark on the lip, is from Corfu, where it was gathered by himself on tl summit of the Garouna Pass.—*Bot. Reg.*, 46.

PENTSTEMON GORDONI. This charming species was raised by Edward Leeds, Esq., of Manc ster, from seeds given him by Mr. Shepherd, of the Botanic Gardens, Liverpool, and which had b collected by Mr. Gordon in the valley of the Platte River, on the east side of the Rocky M ntains. In many respects it resembles the Pentstemon speciosus, an inhabitant exclusively of tl Oregon territory, west of the Rocky Mountains; but that has much narrower leaves, a less l y panicle, deeper coloured flowers, a larger calyx, and above all, the anthers and sterile f nents glabrous. It seems to be quite hardy, but is impatient of much moisture, and should be k t dry from November until February. It flowers in June, when the large sky-blue flowers r der the plant a very beautiful object.—*Bot. Mag.*, 4319.

PUYA ALTENSTEINII; *var.* GIGANTEA. Some time ago this plant was received at the Royal dens of Kew, under the name of *Pitcairnia undulatifolia*, and was published by Sir William, er that name, at t. 4241.—*Bot. Mag.* The same was afterwards sent from Berlin, under name of *Puya Altensteinii*; Messrs. Lucombe and Pince, of Exeter, have since flowered nd it proves to be a truly magnificent plant, sending up a flowering spike five feet high, clothed h deep crimson bracts and yellowish white flowers.—*Bot. Mag.*, 4309.

SPIRÆA PUBESCENS. A small grey shrub, with little hemispherical umbels of pure white small wers, having a slight fragrance. In habit it may be compared to a weak *Spiræa opulifolia.* ppears to be nearly hardy, grows about two feet high, and flowers freely in any good garden l.—*Bot. Reg.*, 38.

SALVIA LEUCANTHA. This rare and remarkable *Salvia* possesses, in its numerous flowers, in rich violet or lavender-coloured tomentum of the calyx, and the pure white of the corollas, a uty which cannot well be represented on paper. It is a native of Mexico, from whence it was roduced to the Continent in 1825, and has now been first brought to the greenhouses of this ntry from a garden at Nice, by Lady Smirke, Great Stanmore, Middlesex, in whose collection flowered in June, 1847.—*Bot. Mag.*, 4318.

TRICHONEMATA GRÆCA. Dr. Lindley regrets being unable to furnish particulars respecting o pretty *Trichonemes*, figured under the above head, which were collected by the late Dean of anchester. One, the *T. subpalustre*, with blue and white flowers, was found at Salonica, and in e Ionian Islands; and the other, *T. pylium*, with white and yellow flowers, was found at varino.—*Bot. Reg.*, 40.

VIBURNUM MACROCEPHALUM. This beautiful plant exists in the Garden of the Horticultural ciety, where it has flowered, having been received in June, 1844, from Mr. Fortune, who found in Chusan and at Shanghae. Mr. Fortune speaks of it as follows:—" This noble species was so found in the gardens of the rich in the north of China, and will probably prove perfectly rdy in England. There is a tree of it in a garden in the island of Chusan, at least twenty feet high, hich in the month of May every year is covered with its snow-white blossoms. When grafted it ooms on small plants in pots, and is not unlike a white Hydrangea, by which name it is known nongst the Chinese." It is certainly one of the finest hardy shrubs that have been introduced. ven in the greenhouse and in a pot its beauty is conspicuous. Hitherto it has been grown in a ixture of loam and sandy peat.—*Bot. Reg.*, 43.

PLANTS NEW OR INTERESTING, IN FLOWER IN THE PRINCIPAL SUBURBAN NURSER s AND GARDENS.

Æschynanthus longiflorus. It will be found in our July number, that a plant bearing his name has been already noticed as introduced by Messrs. Veitch, of Exeter, but which is now na ed *Æ. speciosus*. We have again to claim attention to another species, also forwarded by Me rs. Veitch, which proves to be the true *Æ. longiflorus:* they received it from Mr. Thomas Lobb (ir collector at Java) in plants under the name of *Lysionotus longiflorus*. It is described as one ot high, in dwarf forests, growing on trees at an elevation of from three to four thousand feet. ey treat it as a stove plant, and find it of easy culture. The flowers are produced freely all ove he plant in clusters, some holding ten flowers, averaging from four to six inches long, of a very ch crimson scarlet colour. The plant, when in good flower, must have a gorgeous appearance.

Browallia Jamesoni. A remarkable and very beautiful plant, its surface profusely decor ed with bright orange and yellow coloured blossoms. It differs from all the species hitherto know as annuals, being a shrub, and very superior both in flower and habit. It was introduced by Me s. Veitch and Sons, Exeter, and forms a prodigious acquisition to our gardens.

Cattleya citrina. In the collection of J. E. Schroeder, Esq., Stratford Green, we found is beautiful species blooming most luxuriantly, having eight flowers fully developed at once: is grown on a log of wood, suspended from the roof of the house, and appears to succeed best w n turned upside down. Mr. Plant says he has two very distinct varieties, one much larger, with he labellum all yellow, the other having a crisped margin of white. We do not remember to ve seen a finer specimen, whether from the peculiar habit and glaucous appearance of the foli e, colour of its flowers, or the exceedingly fine state to which it is grown and bloomed.

Echinacea intermedia. Messrs. Backhouse, of Fishergate Nurseries, York, have just r-warded to us a specimen of this, the handsomest of the purple-flowered Rudbeckia tribe. It is a strong robust habit (quite hardy), rising from eighteen inches to two feet, the stem clothed h short bristle-like hairs, and marked with brownish streaks throughout: the leaves are scabr s, dark green, nearly heart-shaped at the base, verging towards the upper part to ovate-acumin e. The primary leaves are opposite, but assume an apposite position on the lateral floral branc s. The flower is from four to five inches in diameter, of a bright reddish-purple or lilac, very g-looking. It commences flowering in August, continuing until November, and appears to be on f the finest autumnal herbaceous plants.

Gompholobium sp. At the nursery of Messrs. Knight and Perry, several species of the ab e have been flowering abundantly, each differing, either in habit or flower, from the other. The st we have already noticed as flowering with Mr. Ayres, gardener to J. Cook, Esq., Blackhe h Park. The second is called *G. splendens*, having very brilliant yellow flowers, and good ha t. The third has deep yellow blossoms, with carmine spot in the centre, the back of the flower be g a dark chocolate. The habit of the young plant is much like *G. polymorphum*, but as it ages it -comes considerably larger. The fourth is more shrubby, having pinnate foliage, fine and wi : this species bears bright reddish-lilac blossoms, in clusters of eight or ten, and is a very e bloomer. It is called *G. venustum*, and will no doubt become a great favourite. The fifth is m h akin to the above, being a decided shrub, though the foliage is smaller. It has bright yellow b -soms, and produces them in great abundance at the tip of every shoot. This variety is kno n particularly by the calyx being thickly covered with down-like hairs. When a fine specimen, l covered with bloom, from the peculiar brightness of its colour, it would be difficult to surpass its y appearance.

Leschenaultia splendens. A very handsome and well-flowered specimen of the above s sent to the Horticultural Rooms by Messrs. Veitch and Son, Exeter. In habit, it has much e character of *L. biloba*, though the foliage is a little longer and curled inwards towards the st . The inflorescence is of a most brilliant and pure scarlet, of the size and form of *L. biloba*, t produced in clusters and great abundance at the end of each shoot. We noticed a much fi variety, the flowers larger and richer in colour, blooming with Mr. Ayres, gardener to J. Co , Esq., Brooklands, Blackheath Park, Kent.

Sobralia macrantha splendens. A remarkably fine and richly-coloured flower has lat been showing its beauty in the Nursery of Messrs. Rollisson, Tooting, Surrey. It differs fr

S. *acrantha*, particularly by the flowers being more compact and substantial ; the colour, too, is richer. The plant is more dwarf, scarcely reaching two feet high, and many of the stems pr ucing flowers at one foot. This character, and the rich colour of the flower, will make it a g t attraction to all cultivators, especially as it lasts a considerable time in bloom.

RHODODENDRON JAVANICUM. Messrs. Veitch and Son have recently flowered a superb species fr the mountains of Java, nearly hardy, requiring merely protection from the frost, similar to t of the Chinese Azalea. It has bright orange flowers of good form and large size ; the dried sp imen sent with it shows that it produces them in large masses. The colour (we augur) will b capital assistant to the hybridizer. The habit is far superior to any of the species, having a b ht rich green leaf, smooth and flat, about five inches long and two broad, and tapering to e end.

VERBENA SEEDLING, *var.* We noticed this beautiful race in most luxuriant condition in the N sery of Messrs. Henderson, Pineapple Place, Edgware Road, consisting of all the best v eties in cultivation, one plant of each growing in a border ; we never saw such a gorgeous d lay of colour as they presented, each plant being a fine specimen. Among the finest and n est were the Empress Josephine, a blue variety ; Mont Blanc, a fine white variety ; Beauty of S John's, a rose variety ; and the Standard of Perfection, a salmon-coloured variety; all of which a worthy the attention of the florist.

OPERATIONS FOR SEPTEMBER.

THE period having arrived when out-door gardens will be in the greatest state of perfection, the of all the culturist's endeavours should be to keep them up to that standard, or as near to it circumstances will permit. His efforts to maintain everything orderly, clean, and neat in the degree, should be conspicuous, and should take precedence of many matters which may seem more importance. Next to this, industry, good judgment, and attention to minute particulars, l effect all that is capable of being accomplished under ordinary circumstances.

In the parterre and flower-ground a chief object should be to keep up a display of flowers, and aiming to do so, we should not be content to supersede beds of plants, or individual specimens ich may be exhausted, or their blooming season over, by others that will blossom some time eafter, but those we introduce should be in such a condition as that they renew the scene into which y are introduced. It is not an extraordinary provision, always to have on hand a store of things the purpose of filling up vacancies, either on a large or small scale. Experience will best teach ich are the most suitable plants for the purpose in question. Scarlet Pelargoniums, Fuchsias, phæas, Verbenas, and many annuals, are excellent, and may be grown to any shape or degree perfection in pots, and ever be kept ready to transport in full bloom to the flower-garden.

Notwithstanding much may be done by acting on the suggestions contained in the foregoing ragraph, it will be advisable to make the most of all flowers at this season ; and nothing should wanting, so far as their proper disposal is concerned, to show them off to the greatest advantage. ost strong and large-growing shrubbery-border and flower-garden blooming plants will have arly attained their full dimensions ; and therefore they will require well supporting ; not only to event injury happening to them from rough weather, but also to enable them to develop in a perior manner their true characters, excellences, and beauties. Various Clemati and other mbers and twiners are delightful now ; let everything be done to render them as characteristic possible, and to bring out their native loveliness to the fullest extent. Pruning, where the proction of ornamental effect is the object, is in many places a very considerable item of that to hich the culturist has to give his attention at this season—it must have regard according as it is portant or otherwise. Seed gathering, propagation in various ways ; potting bulbs to flower in ts in winter, both in the open air and in the plant-houses ; also planting them in the open ground, llecting composts, and soils, and many such matters, have all to be remembered now, and must ceive the attention they require according to their importance.

With respect to raising a stock of flower-garden plants ; since it is a business of first moment, and we have of late been endeavouring to bring it into notice as such, it will be sufficient here observe, that the available season for striking these plants for furnishing the borders next year fast passing away. Those persons, therefore, who have not begun this business, will do well bear this fact in mind ; and others who may yet have to complete their stocks cannot now affo to lose a moment's time. Make a list of everything that will be required, and plant sufficie cuttings, that when the young plants are stored away, winter losses may not leave a deficiency.

Autumn and winter-flowering plants, for the houses, &c., should now receive a due share notice. Roses, pinks, and other plants, may be prepared to place in warmth, where it is desiral to have them in blossom in November and December ; and Hyacinths, Narcissi, &c., should potted for the same purpose. Amongst other things which we depend upon for an autumn winter display of flowers, is a collection of Camellias. Ours at Chatsworth are finely set for bloo These can be had in flower at any time from the close of autumn until the return of the followi spring. As an almost perpetually flowering plant, and a very delightful one withal, we must n forget to mention the *Cuphæa platycentra*, figured in our Magazine at the close of last year. It certainly a charming plant, and ought to be in the possession of all those who have accommodati for half a dozen, either in pots or in the open borders.

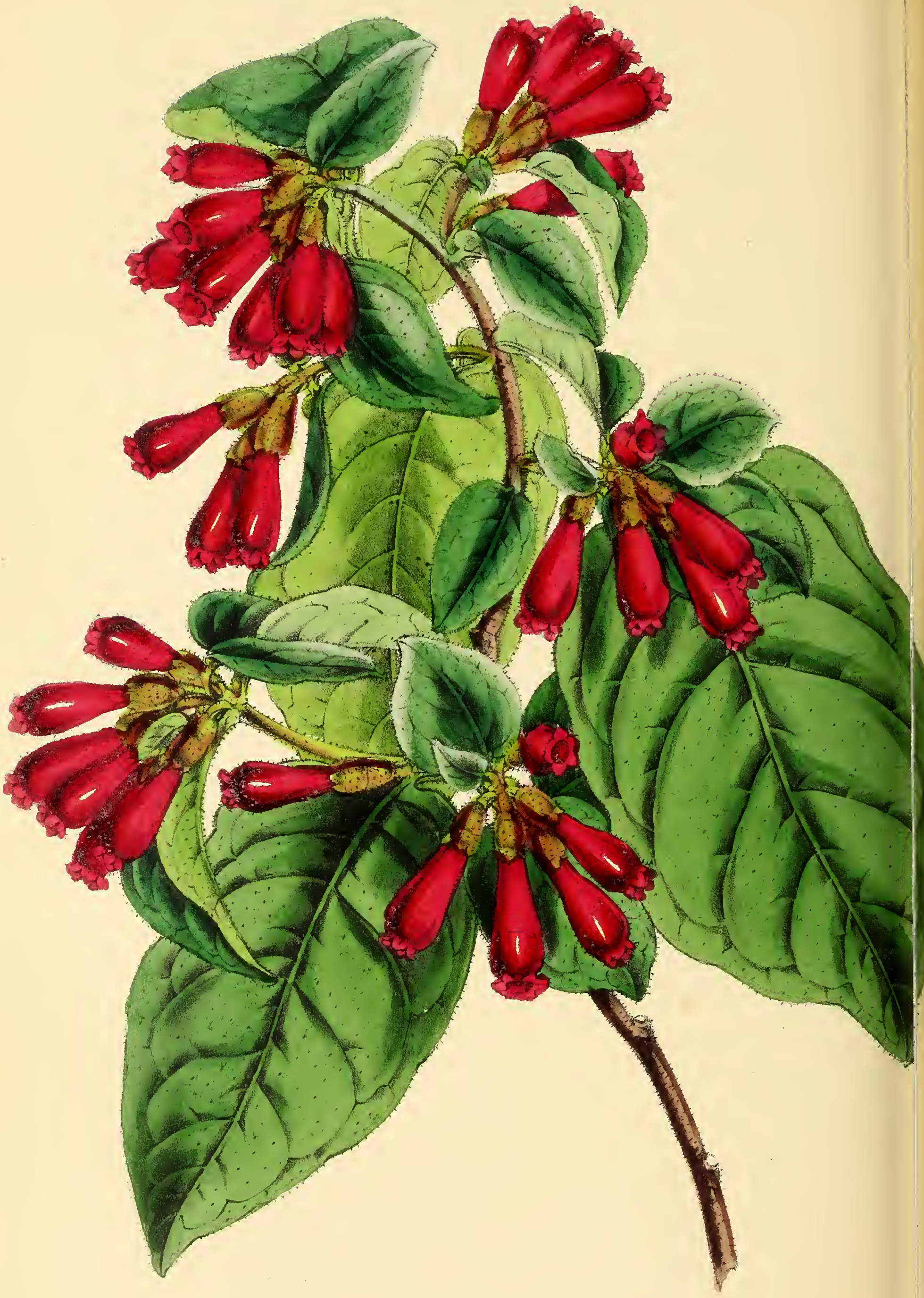
An opportunity should now be embraced to thoroughly *clean*, and, it may be, *paint* the woo work inside all the glass erections, previously to their being filled again, or at least more ful occupied than at present, with plants. Measures of this kind greatly conduce to freedom fro insects, as well as promoting the general good of the plants. Any of the more robust greenhous plants, which may hitherto have remained under glass, may, if their growth is completed, hav three weeks' or a month's full exposure to the open air, they will be rendered more hardy an better able to endure the dark and damp days of winter by this means.

Some, and indeed all, pot plants will be benefited by subjecting them more or less to a hardenin process, according to their natures. Shade, regular waterings, and high temperature, must b forthwith gradually dispensed with in the case of the main collections, but growing plants mus still continue to receive the treatment they require to develope their parts perfectly.

Stanhopeas and other strong-growing Orchids must be cautiously watered during the perio they continue to grow, or much mischief, by damping, will in all probability ensue. Some of th finest Orchids, as *Cattleyas* and *Lælias*, will presently be in flower ; let everything be done to enabl the blossoms to expand perfectly, and to preserve them when expanded.

Carnations and plants of that description must be potted or planted in beds as they becom rooted, and care should be taken that they are not planted in too rich a compost, or, during winter they may probably perish.

Seed collecting and propagation amongst pot plants must not be lost sight of, and every leisur minute should be bought up for these purposes.



S. H del & lith

Habrothamnus fasciculatus.

HABROTHÁMNUS FASCICULATUS.

(Cluster-flowered Habrothamnus.)

Class.	*Order.*
PENTANDRIA.	MONOGYNIA.

Natural Order.

SOLANÀCEÆ.

ENERIC CHARACTER.—*Calyx* campanulate, five-to ied. *Corolla* hypogynous, tubular, and club-shaped, tu long, limb five-toothed, contracted at the mouth. *S ens* five, inserted about the middle of the tube of th corolla, included; filaments simple. *Anthers* o ing lengthwise. *Ovary* two-celled, placenta ob-lo , dissepiment adnate, many-seeded. *Style* simple; st na capitate, indistinctly two-lobed.

ECIFIC CHARACTER.—*Plant* a *shrub*, growing five to x feet high, downy. *Branches* round. *Leaves* pe-ti te, alternate, ovate-acuminate, entire, somewhat w y; *petioles* short, fleshy, tinged with red. *Flowers* c ose, produced at the termination of each branchlet, fasciculate. *Floral leaves* three or four, situated immediately beneath each fascicle. *Calyx* small, tubular, somewhat coloured, cut into five erect, ovate-acuminate, fringed segments, or teeth. *Corolla* three times the length of the calyx, of a deep rich crimson colour, urceolate, tapering at the base, and contracted at the mouth; *limb* in five slightly spreading acute teeth. *Stamens* included. *Filaments* simple, and inserted below the middle of the tube. *Anthers* almost round. *Ovary* round, seated on a shallow fleshy disk. *Style* shorter than the tube. *Stigma* capitate.

SYNONYMES.—Meyenia fasciculata, *Schlecht.* Habrothamnus elegans, *Scheidweiler.* Cestrum roseum, *Hort.*

THIS beautiful hardy greenhouse plant is a native of mountain sides in Mexico, w ere it was found growing in company with *Gaultheria nitida*, *Cobœa stipularis*, &c., a formed a shrub of five or six feet high of most surpassing beauty.

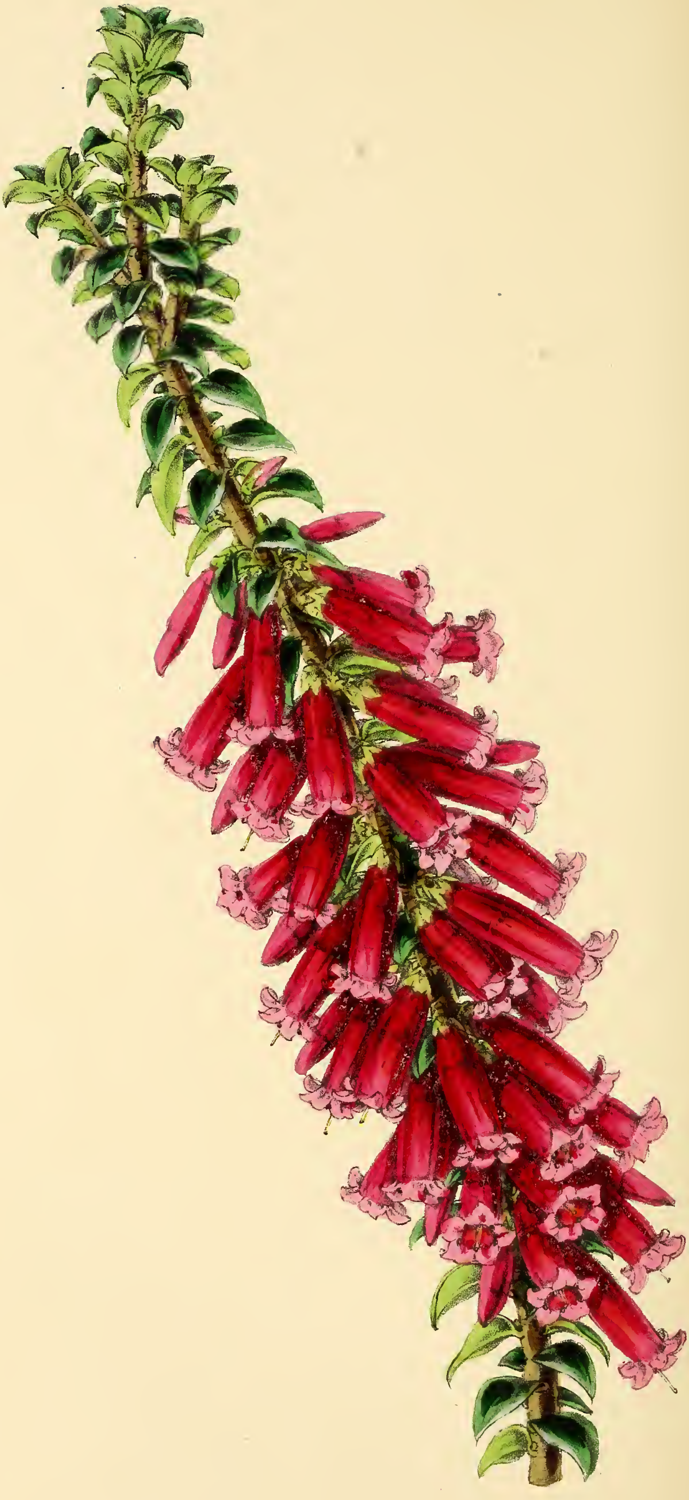
It was introduced from its native country to Belgium, by M. Van Houtte, N rseryman, Ghent, about 1839, and from thence it found its way into the Nursery o Messrs. Lucombe, Pince, and Co., Exeter. It was also received into the Gardens o he Horticultural Society.

Although a free bloomer, in this country it has hitherto flowered only imper-f ly. In its native habitats the flowers are produced in such quantities as to give t branches the appearance of a crimson wreath; and Hartweg describes it in his c mmunications with the Horticultural Society as one of the gayest plants of the M xican Flora.

It flowered at Chatsworth this last spring on the conservative wall, where it thrives well, and promises to make a fine plant. It also bloomed at the Hort cultural Society's Garden, Turnham Green, where our drawing was kindly permitte to be made last April.

For the general cultivation of this species and *H. corymbosus*, see p. 112 of th present volume.

The name is derived from *habros*, gay, and *thamnos*, a branch, in allusion to th splendour of its flowering branches.



S. Holden del. & Lith:

Epacris Tauntoniensis.

EPÁCRIS TAUNTONIÉNSIS.

(The Taunton Hybrid Epacris.)

Class.	*Natural Order.*	*Order.*
PENTANDRIA.	EPACRIDÀCEÆ.	MONOGYNIA.

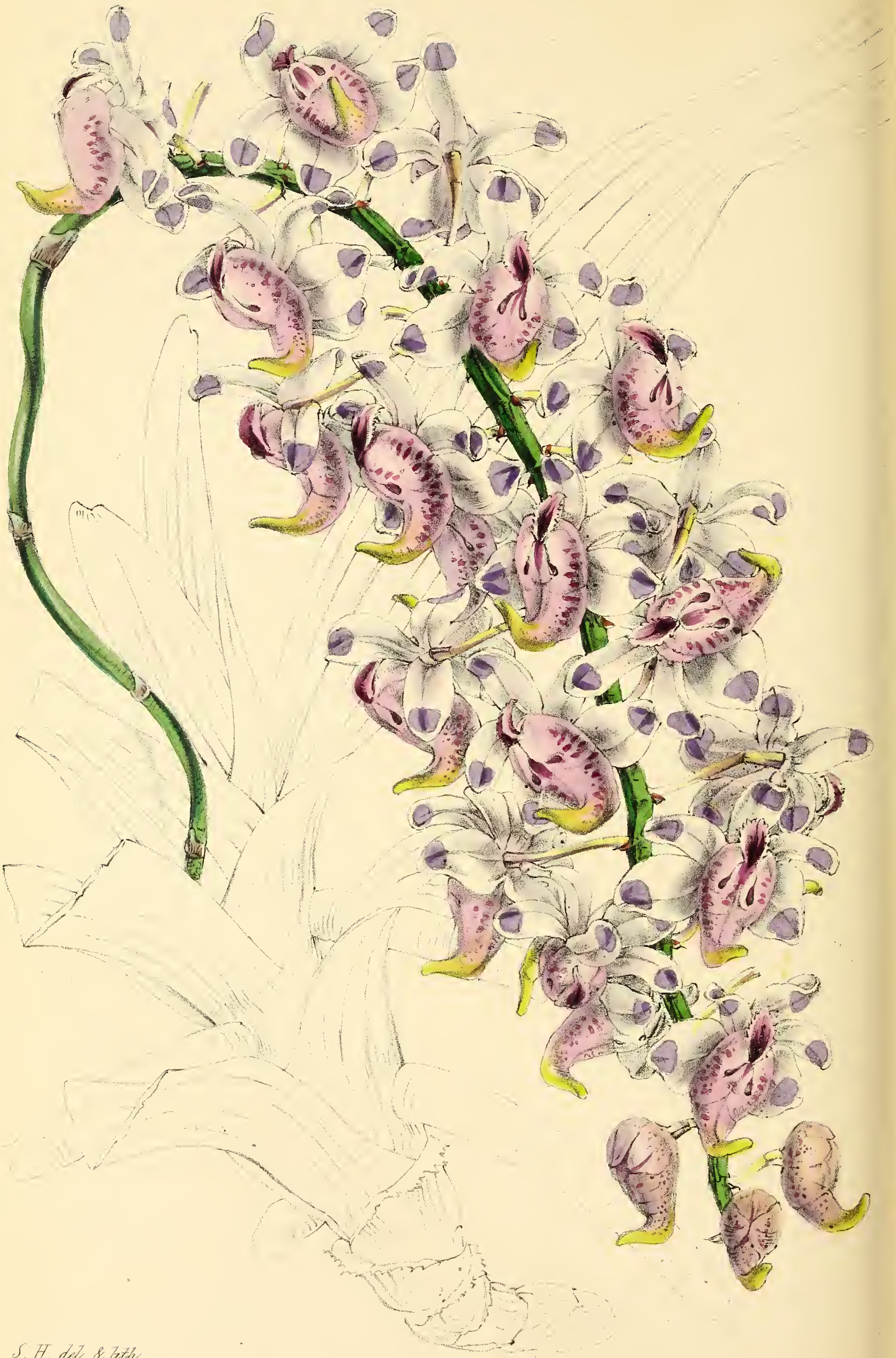
eneric Character.—*Calyx* coloured, many brac- t e: bracteas of the same texture as the calyx. *lla* tubular, limb beardless. *Stamens* epipetalous. *hers* peltate above the middle. *Hypogynous scales* five. *Capsules* having the placentas adnate to the central column.—*Don.*

Garden Hybrid.—Epacris Tauntoniensis.

This very pretty free flowering hybrid Epacris was raised a few years ago by . Ball, Nurseryman, of Taunton, betwixt, as we believe, *E. grandiflora* and *E. i ressa.* It is certainly a very ornamental kind, and deserves universal distri- ion, being a robust free grower, a liberal brancher, and having a very prolonged f vering season.

On the culture of this genus of plants much has been said in former volumes of t s work. However, it may be merely mentioned here, that this, and all the other ong growing kinds, are greatly benefited by a small addition of light sandy loam l well rotted leaf mould, being mixed with the sandy peat in which they are ally grown, and during the winter season, place them in as light and airy a ation in the greenhouse as possible, but carefully prevent their being injured frost.

For the opportunity of figuring this pretty kind we are indebted to Mr. Ball, Taunton, in whose nursery it flowered in December last, when our drawing s made.



S. H. del. & lith.

Aerides virens.

AÈRIDES VÌRENS.

(Dark-green leaved Air Plant.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDÀCEÆ.

ENERIC CHARACTER.—*Perianth* spreading or closed. *als* lateral, often oblique at the base, having a claw nate with the column. *Lip* with a claw, jointed to column, saccate or spurred, three-lobed; lateral es short; middle one cucullate or awl-shaped, or rtly tumid, or partially arched. *Column* reclining the ovary, short winged. *Anthers* two-celled. *Pol--masses* two, furrowed at the back. *Caudiculæ* ad and filiform; gland peltate, subrotund.

SPECIFIC CHARACTER.—*Plant* an epiphyte. *Leaves* distichous, channelled, broad and thick, obtuse, and obliquely terminated. *Raceme* pendulous, many-flowered. *Flowers* fragrant, white, blotched and spotted with bright crimson-lilac. *Sepals* obovate, obtuse. *Petals* the same as the sepals. *Lip* large; lateral lobes medium size, denticulate at the top; intermediate one larger, somewhat furrowed, and denticulate at the top.

THIS beautiful Orchid has been an inhabitant of our stoves since 1842, when was introduced, from Java, by Messrs. Loddiges, of the Hackney Nurseries.

There is a general similitude in the foliage of the plants of this genus, by which ey are not, when out of flower, very readily distinguished from each other, but this ecies may be known by its leaves assuming a peculiarly rich and deep glossy green, nce the name *virens*.

The flowers are about the size of those of *A. cornutum*, figured in the "Botanical egister," for 1485, and they emit a peculiarly delicious perfume. The sepals and etals are of a clear French white, and each has a large, irregular, purplish-crimson otch at the tip, and here and there a faint tinge of lilac. The middle lobe of the p is marked with crimson-lilac down the centre to the full extent of the tongue, with ler denticulate edges, and the two side lobes are blotched with pale lilac, and otted with bright crimson.

For attractive qualities, this species can be scarcely considered inferior to either e old *A. cornutum*, figured as above; *A. quinquevulnerum*, "Mag. Bot.," viii., 241; *A. Brookii*, "Mag. Bot.," ix., t. 146; *A. maculatum*, "Mag. Bot.," xii., 49; or any other species yet introduced.

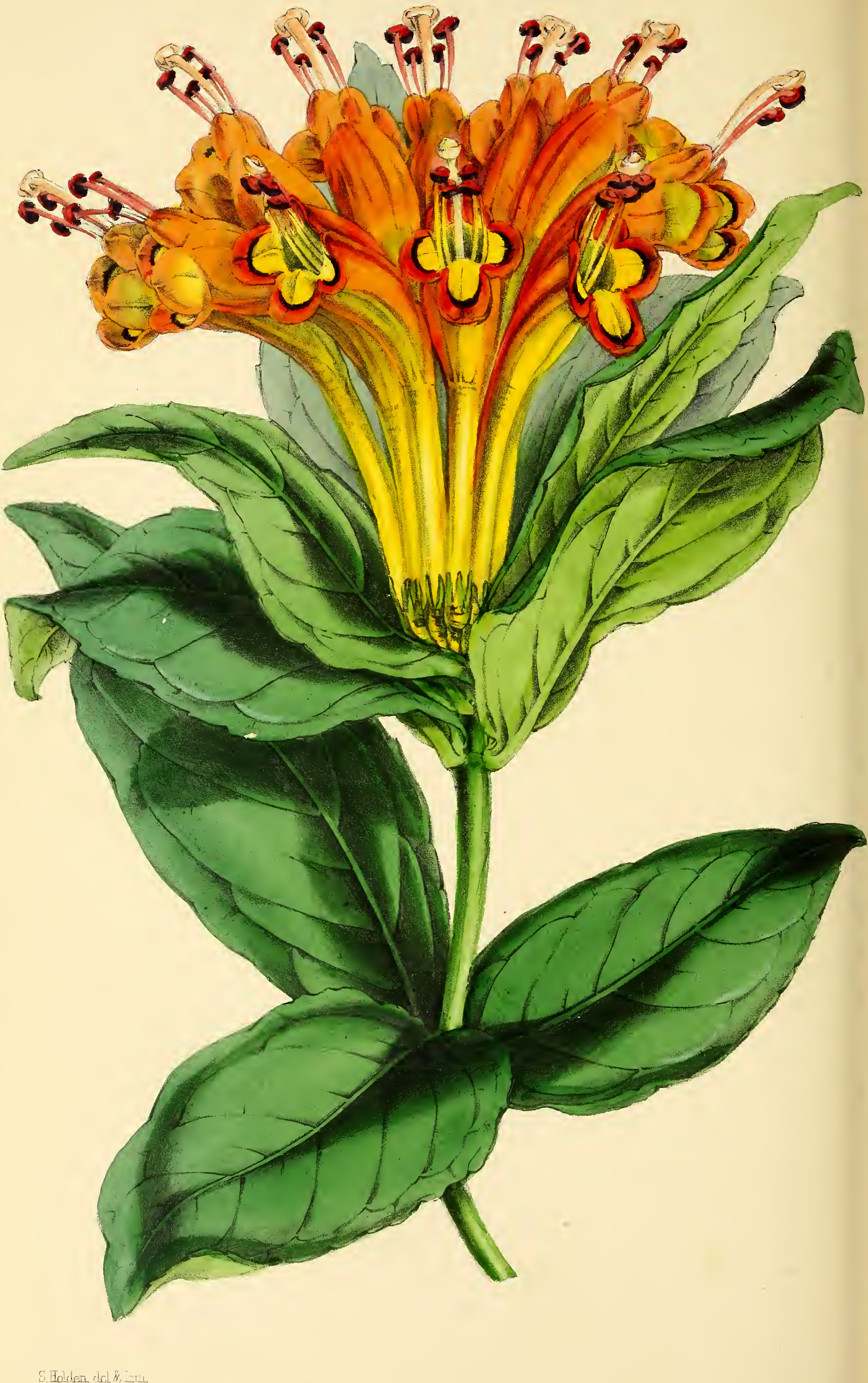
A. virens flourishes in a very damp atmosphere during the season of growth, and treated in the same manner as the other species figured in this work; namely, being attached to a rough block of wood by fine wire, the lower part of the stem, and a few of the roots also, enveloped in a small portion of sphagnum. It cannot bear intense light, and must therefore be securely shaded from the possibility of the sun's rays affecting it; and, with a high temperature, and plenty of moisture, by syringing and other means, it will grow with rapidity and flower freely.

In winter, the removal of shade, a lower temperature, a drier atmosphere, and an almost entire suspension of water to the plant, will place it in a perfect state of res until the following April, when it should be subjected to a warm, but dry, atmosphere, and in June be again introduced into a moist stove, as before.

In propagation, it is advisable not to separate any young branches until roots have protruded from them, and after separation, give the young plants very little moisture until they evince signs of growth.

Our drawing was made at the nursery of Messrs. Loddiges, in April last.

The generic name is derived from *Aer*, air, on account of its deriving so visibly its sole support from the atmosphere.



S. Holden, del & lith.

Æschynanthus speciosus.

ÆSCHYNÁNTHUS SPECIÒSUS.

(Showy Æschynanthus.)

Class.
DIDYNAMIA.

Order.
ANGIOSPERMIA.

Natural Order.
GESNERÀCEÆ.

ENERIC CHARACTER.—*Calyx* ventricosely tubular, fi cleft. *Corolla* tubular, incurved, with a dilated c panulate throat, and an oblique, sub-labiate limb. *nens* four, didynamous, exserted, usually with the r ment of a fifth; anthers at first conniving by p s; cells parallel. *Stigma* excavated, somewhat f nel-shaped. *Capsule* long, siliquose, two-valved, f ely four-celled. *Seeds* small, generally scabrous, f n papillæ ending in a bristle-like tail at both ends. - *on's Gard. and Botany.*

PECIFIC CHARACTER.—*Stems* about two feet long, a ording to Mr. Lobb; the lower part woody; the u er and younger *branches* subtetragonous and her- eous. *Leaves* opposite or ternate, mostly nearly s ile, the uppermost ones beneath the flowers in a *rl* of four to six or eight; the form is between ovate and lanceolate, acuminate, the texture very fleshy, the margin obscurely serrated. *Flowers* in terminal fascicles of from six to ten, and even twenty; large, handsome, showy, slightly pubescent. *Peduncle* erect, short, single-flowered. *Calyx* cut to the base in five deep, almost subulate, erect segments. *Corolla* between three and four inches long, full orange, with the extremity scarlet; the tube clavate, curved downward at the extremity, and there convex at the back, concave or canaliculate beneath (within glandular); the mouth oblique, four-lobed, the lobes patent, rounded, the upper one bifid; each lobe bears a lunulate black line, forming the boundary between the orange and red colour. *Stamens* and *style* exserted. *Ovary* linear, inserted in a fleshy gland or cup. *Stigma* transversely grooved.—*Sir W. Hooker, Bot. Mag.*, 4320.

NOTICES of this fine addition to our stoves were given in pp. 141 and 190 of the esent volume of this Magazine. This is another of the introductions of Messrs. itch and Son, nurserymen, Exeter. It is a native of Java, where it was dis- vered, in very damp woods, attached to the trunks of trees on Mount Asapan, near ntam, at an elevation of 2000 feet, by Mr. Thomas Lobb, who sent home living nts of it.

A fine specimen was exhibited at the Horticultural Show in Regent's Park, last ay, where it was very justly admired as one of the finest species which has yet been roduced: the only one which can at all vie with it is *Æ. longiflorus*, a figure of ich will be given shortly.

The foliage and manner of growth is not very unlike *Æ. grandiflorus*; the fas- les bear from twelve to fifteen blooms each, of a brilliant scarlet and orange lour, each blossom being about two inches and a half in length.

It is a very *free grower* and *bloomer*. Messrs. Veitch and Son have now a plant t more than six inches high, and several not exceeding a foot, just coming into wer, in their nursery at Exeter.

It is of easy culture, and may be potted in rough sandy peat, or, like all the other species, it will flourish in a mixture of reduced moss, rough peat, and potsherd A wire, or open wooden basket, or a pot (provided the latter be well drained) w answer equally well. It may also be placed upon a block of wood.

It requires the heat of the stove, and during the season of growth, the pla should be frequently syringed, and freely watered at the roots; indeed the treatme in the growing season exactly corresponds with that given to tropical Orchids. Whe its growth is completed, moisture must be supplied less liberally: by this means, a a cooler temperature, the plant will be brought into a state of rest, when it should kept comparatively dry and cool; indeed, the temperature of the greenhouse quite sufficient whilst the plant is in a state of torpidity.

On the approach of spring, introduce it again into heat, but, for two or thre months, administer very little moisture; by this means, when it is introduced agai into a growing atmosphere, it will grow and flower with great freedom.

For the opportunity of figuring this splendid species we are indebted to Messr Veitch and Son, of Exeter.

GARDEN CULTURE OF TOBACCO.

THE subject of this article is somewhat out of date: it ought to have been introd ed in March; but as it was then overlooked, we must now view it prospectively. T acco is of great importance to the gardener; it is one of those agents upon which h can place confidence, which never deceives him if he applies it with judgment, and a he right time; but it is very costly, and though to the man of property this is a affair of minor consequence, there are others who *feel* the outlay of 3*s*. 6*d*. or 4*s*. a ound that occurs several times in the year. Not, however, to dwell upon conting cies, it is our intention to prove by undeniable facts and evidences, that the e nomical gardener and amateur may furnish himself with a very excellent succed eum, which, though its inherent qualities may not amount to more than two-thirds o those possessed by the best American Tobacco, are still very efficient, and are f her recommended by the great facility and light expense with which it can be o ained. By way of introduction, however, the following sketch is offered as cont ing a concise historical view of Tobacco.

The genus *Nicotiana* comprises about forty species, fourteen of which are c tained in "Loudon's Encyclopædia of Plants," p. 136. It belongs to the *laneæ*, order cxliii. (Nightshades) of *Jussieu*, its colleagues in the tribe being *anum*, *Atropa*, *Datura*, *Hyoscyamus*, *Capsicum*, and *Physalis*. These "Lurids" (*ridæ*) of Linnæus, are all of a suspicious sombre character; they tell of bane and p son, and truly the gardener acknowledges the destructive power of the herb, ich can in a few seconds lay prostrate myriads of those "*Vastators*," which, if t y fail to realise Mr. Smee's enthusiastic announcement, do most certainly prey on, and utterly disfigure his best Roses, Pelargoniums, Calceolarias, &c., &c.

The term *Nicotiana* was derived from that of Jean Nicot, the agent of the King France at Portugal, who there procured the seeds of the Tobacco from a Dutchman, o had obtained them from Florida. Nicot sent them to France in 1560. "The st plant was said to have been presented to Catherine de Medicis, whence the me '*Herbe de la Reine*.' The name Tobacco, which has superseded all others, is t of a certain district of Mexico. Petum or Petume (whence, evidently, our dern genus *Petunia* is nominally derived) is a Brazilian word."

There are two species of *Nicotiana*, which alone are worthy of the gardener's ention, for the purposes of washing and fumigation. The first, and earliest known, *N. Tabacum*, introduced in 1570; the second, *N. rustica*, from which the Tobacco Syria is prepared; both are annuals, and are raised from seeds. *N. Tabacum*, e real Virginian Tobacco, attains the height of 4 to 6 feet, if properly cultivated: leaves are very large and expansive—the lower decurrent down the stem, the per sessile, oblong, acuminate, and of a rich, yellowish green. When fully grown, an open situation, and under the influence of a powerful mid-day sun, they exhale a very powerful odour of Tobacco, which is traceable at a considerable distance. Th odour affords proof of the healthy condition and aromatic strength of the herb, does also the large size and full colour of its pink, funnel-shaped flowers, that ar borne on axillary shoots, and are very ornamental.

Before we detail the processes which, under our own management, were found be successful, it will not be irrelevant to refer to the *culture of Tobacco in Americ* as affording a standard of comparison which some persons may turn to advantage.

“The plants are raised on beds early in the spring, and when they have acquire four leaves they are planted in the fields in well-prepared earth, about three fee distance every way. Every morning and evening the plants require to be looke over, in order to destroy a worm which sometimes invades the bud. When four c five inches high they are moulded up. As soon as they have eight or nine leave and are ready to put forth a stalk, the top is nipped off, in order to make the leave longer and thicker, by diverting all the energies of the plant to them. After this, th buds which sprout from the joints of the leaves are all plucked, and not a day i suffered to pass without examining the leaves, to destroy a large caterpillar which i sometimes very destructive to them. When they are fit for cutting, which is know by the brittleness of the leaves, they are cut with a knife close to the ground, an after lying some time are carried to the drying shed, where the plants are hung u by pairs upon lines, having a space between them that they may not touch on another. In this state they remain to sweat and dry. When perfectly dry th leaves are stript from the stalks, and made into small bundles, and tied with one o the leaves. These bundles are laid in heaps and covered with blankets. Care i taken not to overheat them, for which reason the heaps are laid open to the air fron time to time, and spread abroad. This operation is repeated till no more heat i perceived in the heaps, and the Tobacco is then stowed away in casks for expor tation.”—*Encyclopædia of Plants.*

It has been stated above, that the Virginian species is to be preferred; th common “*green*,” or *N. rustica*, with small and viscid leaves, must be rejected a worthless in this climate, and extremely difficult to dry and cure.

The Virginian, on the contrary, is a noble and very handsome plant, and th odour it diffuses under a hot sun leads to the conjecture that, if three or four wer grown in large pots (No. 1,) of rich sandy loam, and retained in a conservatory o spacious greenhouse, they might act as a preventive of the aphis. The thought has casually occurred, and though no proof can be cited, it might be prudentially acted on.

Tobacco is equally tender and impatient of frost as the Potato, but if once brought into vigorous growth, it becomes firm and strong as the Sunflower. The seeds are small, and should be sown about the middle of March in a pan just below the surface of extremely fine soil, employing the gentle, rather moist warmth of a hot-bed o propagation house. The seedlings should be sprinkled or dewed with the finest rose of a watering-pot, and as they grow, must be thinned to regular distances.

Wen they have attained the proper substance and strength (which every good pagator well understands), they should be removed singly to the smallest pots of lit-loamy earth, then watered and shaded in a warm frame till growth becomes troughly established. A removal into a larger size pot, wherein a firm ball mht be formed, would, without any loss of time, be found very advantageous. Fy fine plants would furnish a very ample supply of leaves for a moderate eblishment.

Soil and future cultivation.—The plant will grow in any kind of ground, but as t gardener's object must be to produce a herb replete with highly laborated jues, it will be essential to select a place in the garden where the earth is a strong (r clayey) unctuous loam, deeply enriched by low-placed manure, and rendered on by a fine siliceous sand. We know that the organic products of the foreign Tacco, grown in the hot districts of America, contain narcotic and poisonous propties, which are to a certain degree more feeble in the plants of our gardens; nertheless, during our hot summers, such as those of 1842, 1844, 1846 and 1847, ihe site lie well to the sun, leaves of great intensity will be produced between June a September. In the absence of any correct analysis of the chemical constituents, b judging from the slow and progressive combustion of the dry leaves—somewhat rembling that of weak touch-paper—it should seem that some nitrous salt is psent in the organism. Hence, we would infer that *nitrate of soda* or *saltpetre* nght appropriately be applied to the ground, but yet in quantity not exceeding half a ound to the rod of 30¼ square yards. The bed, or land for a single long row, bng prepared, and somewhat settled, the plants are transferred with balls entire io holes made with a trowel about 18 inches to two feet asunder; the earth of each le should be loosened by the tool, and the exterior parts of the roots of the plant cefully liberated prior to placing each in its hole: the soil must then be insinuated aong the rootlets, made basin-form over them, and a liberal supply of soft pond-ter given from a rose. It will be understood that the season of removal should crespond with that devoted to the bedding-out of ornamental plants in May, and ao, that if the plants be from 6 to 8 inches high, strong, and vigorous in stem and lf, the promise of success will be proportionately great.

We have never observed the caterpillar spoken of in the previous quotation, but tre are depredators which call for a regular inspection; and moreover, if the season dry, the gardener should be alert to give timely waterings, after which the surface l should be moved with a hand-fork, to obviate any baking or incrustation that nerally results from artificial waterings. Where there is plenty of room, as the bacco plant is very ornamental—quite as much so as the Digitalis—it will not be iss to introduce it here and there, in sunny spots of the shrubbery or garden-plots, erein tall plants are admissible.

Curing.—We approve of the removal of side-shoots, in order to divert all the wers of the plant, to the production and sustenance of expansive leaves, but nnot see any necessity for the destruction of the flower, at least of those at the summits, when growth has attained its maximum. However, the gardener shou try experiments, and render himself master of his subject, taking ornament as we as utility into due consideration

We now presume that the leaves are fully developed, and perfected by t maturing sun of July and August; when, therefore, a little flaccidity and change tint are discovered, all leaves so affected should be cut off, close to the stem, and t midribs pared off with a very sharp knife to nearly a level with the under surface of t leaf-plate. They are then to be strung and suspended in pairs, over a line stretche under an airy shed till the sap be carried off or absorbed. At that time the leav will become dry and lax, but not by any means brittle; they are then to be rendere as flat as possible, and laid in that position in a box to which a lid is adapted that wi exactly fit and drop in upon the herb. The practical man will soon discover that h must collect his leaves successively, because many will have attained the require condition long before the time when growth shall have ceased; however, enoug will be collected to ensure a moderate degree of fermentation under a gradu pressure, which should be increased by an increased weighting of the superpose board.

As leaves so obtained have never yet been found sufficiently pungent, we hav generally introduced a very small proportion of the most powerful "*returns*" Tobacc aided by a few grains of finely powdered saltpetre, among the leaves at their fina pressure. Thus, supposing 500 leaves to be collected by the end of September, an by gradual drying and pressure to have become pale brown, with a sensible odour o Tobacco, twenty ounces of purchased Tobacco, and one-fifth that weight of nitre (*i. e.* four ounces), will suffice for the whole quantity; each leaf as it is laid straigh and single in the boxes, receives its proportion of these materials. A little car and precision are required in this arrangement; but if the pressure and curing b carefully conducted in a dry room during winter, not a leaf will decay, and by th time that *Aphides* begin to intrude, a copious supply will be obtained, and of quality sufficient for direct fumigation by the bellows, or to be burned in pots, an finally for the preparation of steeping liquor by infusion in boiling water.

Tobacco-paper may also be prepared by soaking the stoutest porous brown paper in this infusion, made very strong, and with the further addition of a little more saltpetre, just enough to produce a slow touch-paper when dried. This paper is exceedingly pungent, so much so as to be offensive to the eyes: it would therefore be prudent to burn it in pots, and not in the bellows. Whenever a steep liquor is prepared, the Tobacco remaining will not be lost; because, after being again dried, it can be used for fumigation, either in pots or otherwise.

UGGESTIONS FOR THE MANAGEMENT OF PLANTS AND PLANT-HOUSES.

THE time has now arrived when those who have not already begun, will be king preparations for getting their tender plants into their winter quarters; and , even among practical men, much diversity of opinion exists as to what constitutes od practice in the management of plant-houses, we suspect a few remarks at this ason on the subject, will not prove unacceptable to many of our amateur friends. remarked of flower-garden plants at p. 159, most of the plant collections throughout e country require a severe weeding, whereby they would be cleared of many ndreds of plants which now encumber them, much to the advantage of those ants which might be left. Fortunately, however, all plant-lovers begin to see the vantage of growing *selections* as distinguished from collections of plants; and the cognition of the principle, that good things well managed are capable of affording ore real pleasure than great quantities of ill-managed, ugly, gawky plants, is now coming pretty general. This of itself will do much good, as the more both rdeners and amateurs enter into the spirit of specimen-plant growing, the more ill they see the necessity of giving house-room to such plants only as are really orthy of it, while the thousands of comparatively worthless plants which now owd the lists of nurserymen, will be thrown to the rubbish-heap. We do not say at all these plants are unworthy of cultivation, as many persons of uncultivated ste may consider them very beautiful; but when we know that, without either eater trouble or expense, better and far more beautiful things can be grown—why t grow them?

Of what earthly use can it be to grow two or three hundred varieties of Camellia hich some of the continental nurserymen profess to sell, when we know there are ot twenty really first-rate kinds among them? Would it not bespeak better taste grow the good kinds only, and, if a number of plants are required, duplicate with wo or three of the best of each variety. Again, of Ericas, though in plant catalogues pwards of five hundred species are enumerated, and the nurserymen have almost as any varieties, who would think of growing that quantity for the sake of saying I have every known kind," when we are aware that one hundred kinds would take he cream of the whole collection, and that with fifty more there would be very few eft that a cultivator would care about giving pot-room to. If, however, selection is o much required among hard-wooded plants, still more is it needed among soft-ooded ones, such as Pelargoniums, Fuchsias, Calceolarias, Cinerarias, and the like. he varieties of these plants are almost innumerable, and, except to those who are lways among them, almost indistinguishable.

Let us however hope the time is coming, when the importance of growing good lants only will be generally acted upon, and then we have no doubt the importance f growing specimens, as distinguished from the poor miserable wretches we too often see, will be generally recognised throughout the country, and not be confine almost to one or two localities, as at the present time.

These remarks are offered in connection with the management of plants an plant-houses, for the purpose of directing attention to the indispensable necessity giving ample room to every plant; for without this, success in plant cultivation impossible. We all know that if we plant a crop of cabbages too thick, or sow pea without allowing sufficient room between the rows to admit the sun and air freel among them, that we neither get fine cabbages nor yet good peas, because the plant being crowded together, do not get sufficient light and air to elaborate the juice properly, and consequently they are not only deficient in flavour, but also in thos nutritive and life-sustaining qualities for which these vegetables are so muc admired. Now plants cultivated in pots or under glass, though they may not produc edible fruits, obey the same laws of nature, and to bring them to due perfection, the must have an abundant supply of both light and air, and that not by fits and starts but, if first-class cultivation is aimed at, regularly day by day. Hence specime plants, whether in-door or out, should never be allowed to touch each other, neithe should they be so placed, especially during the winter months, that they do not ge a good share of light on all sides.

With reference to the influence of light, as connected with plant cultivation, i would appear that the *theory* of its importance is not borne out by practice, inasmuch as no decided improvement has resulted from its use; but, on the contrary, we know some of the best practical gardeners in the country are decidedly opposed to the use of sheet-glass. So far as our own experience enables us to judge, we have no great affection for it, and, except for its superior appearance and economy in repairs, we should not care much about using it. Singular as it may appear, it is not more singular than true, that nearly all the best specimens of both fruits and plants sent to the London exhibitions, are grown under common glass, and very frequently in heavy houses, seemingly ill-adapted for first-class cultivation. We have been growing plants under sheet-glass of the best quality for some time past, and we find that houses so glazed require much closer attention in changeable weather, and are very liable to scorch the plants if neglected.

Where houses are glazed with sheet-glass in large squares, they should be freely ventilated very early in the morning, especially in the early part of the season, and they should not be shut up so early in the afternoon as is customary with the common greenhouses. The ventilation of horticultural erections is a subject of great interest at the present time, and promises to occupy a good share of public attention. Those who have gleaned their information on this subject from their daily practice, know, as their fathers knew before them, how necessary it is to the well-being of plants, that there should be a constant interchange or renewal of the air in plant and forcing structures, not only during the day, but also during the night, and good gardeners take care to have a thorough circulation of it at all times and at all seasons when it is possible to admit it.

The disciples of the theory promulgated by Mr. Ward, in whose air-tight glass c es plants such as Cacti, Orchids, Ferns, and other Cryptogams, managed to drag o an enfeebled existence for many months, ran away with the idea some years b k, that because these plants lived, other plants must grow, and consequently v tilation became a very secondary consideration among scientific men ; indeed, we r ollect a range of houses, the top sashes of which were all screwed down, and the r ult was, the black Hambro' Grapes became red ones in succeeding years, and the g dener lost his situation. To these houses air was admitted by holes cut midway l ween the glass and the footpath of the house in the back wall ; but these holes never reopened, except to lower the temperature of the house. Horticultural hitects, who too frequently know nothing of practical gardening, soon took up the i a, because it was fashionable ; and hence it would be easy to point to iron-roofed uses built about that time, which were so badly ventilated, as to render it i possible, without shading in sunny weather, to prevent the plants being rched to death. This was one of the reasons why metallic-roofed houses became unpopular, and were so much dreaded by professional men.

We have always laid it down as a rule, that plant and forcing-houses should ver be closed during either night or day except in the most severe weather, but ut "from night to morn, from morn to dewy eve," there should be a constant and rpetual interchange of the external and internal atmospheres. While, however, would do everything in our power to secure this interchange, there are one or two ings which must be carefully guarded against. We all know how very injurious it to the animal frame to be placed in a current or draught, and that a current of admitted through a broken window will lay the foundation of diseases which will ickly gather a strong man to his fathers. Scarcely less injurious are currents of to plants, no matter whether they be warm or cold ; and there are certain greenuse plants—as, for illustration, *Boronia serrulata* and *pinnata*, *Crowea saligna*, e whole tribe of *Gompholobiums*, and many other Swan River and New Holland ants—which, if placed in a current, will not only refuse to grow, but will positively e. Even Heaths hate a current such as is admitted by the small opening of a sh, but they delight in a free circulation of air, admitted in a volume, so as to act on the whole plant at the same time. No greater proof can be given of the injuous tendency of currents of air to plants, than the fact, that a current of frosty air dmitted through a broken square will kill a plant in a greenhouse, the temperature which shall never be below the freezing point, while the same plant, though frozen uite hard, but protected from a current, would be uninjured. This fact we proved everal times during the last severe winter, and so satisfactory was it to us, that hile we admit all the air we can to our plant-houses, we always take care to guard gainst strong currents.

From the preceding remarks it will be seen that the ventilation of plant-houses an operation which requires careful management, and is a point in cultivation hich it is necessary should be well studied. In congenial weather, of course, air

can be admitted at any and every part of the house, but in severe weather it
necessary to exercise great caution. Of all the plans which have come under o
observation for winter ventilation, that of admitting cold air by means of drai
passing from the outside of the back wall under the house to the heating apparat
and escaping upwards among the hot-water pipes, is the best; and if some wi
gauze or perforated zinc be placed along every alternate light at the top of the hous
the ventilation can be regulated with very great nicety, and without any fear of doi
injury, so long as the heating apparatus is kept warm. The cold-air drains under t
house should be of considerable size, not less than nine inches square, so that, in t
case of ripening forced fruits, a large volume of fresh air can be constantly rushi
in; and as the quantity of air admitted will be governed by the escape at the top
the house, no fear need be entertained of cold currents, so long as the back vent
lators are properly regulated. Of houses thus arranged we have never closed t
cold-air drains at any time during the last three years, and by strangers the atm
sphere has always been admired for its fresh and wholesome feel. In these house
the lower pipe of the heating apparatus is laid in a tank, so that the air receives
necessary supply of moisture before it passes among the plants; and when we requi
a very moist atmosphere, it also passes through a coarse, moist, woollen net, whic
makes it all that can be desired for plant cultivation. Of course, this system
ventilation enjoins a waste of heat and an increased consumption of fuel; but that w
do not care for, so long as we are sure we are benefiting our plants by the additiona
expense.

Some modification of this plan we should recommend to every one who i
desirous of excelling as a plant cultivator, and we would particularly impress upo
amateurs the importance of guarding against currents in their plant-houses, especiall
during the winter season. Taking the precautions previously pointed out, an
guarding against over-excitement as to temperature, with due attention to watering
and allowing each plant plenty of room, and thorough cleanliness both in the plants
pots, stages, and houses, success is certain; but neglect any one of these points, an
you will most assuredly and deservedly pay the penalty of your indiscretion befor
another summer dawns upon us. Next month we shall have something to say o
the classification of plants in greenhouses, &c.

CULTURE OF THE GENUS LAGERSTRŒMIA.

This is certainly so splendid a genus of shrubs, that, taking it altogether, few ca surpass it; the management of the species, also, when understood, is far from b ig difficult, although a person unacquainted with their habits would be very likely tc ome to a different conclusion.

There are only seven species known, all natives of the East Indies, China, and tl neighbouring parts; six only of these have come under our notice as having been ii oduced; namely, *L. elegans*, *grandiflora*, *indica*, *parviflora*, *reginæ*, and *speciosa*. C these, all except *elegans* are old inhabitants of our stoves, especially *indica* and *r næ*, the former of which was introduced in 1759, and the latter in 1792: the o ers, with the exception of the one above-mentioned, have all been brought into this c ntry during the present century.

With us, under proper management, they form deciduous shrubs and trees of s ie size and great beauty. Growing naturally within the tropics, the temperature o he stove is necessary to grow them to perfection.

L. elegans is now beautifully in flower in the large conservatory at Chatsworth. T e plant in some respects resembles *L. indica*, but its growth is far more r ust, its flowering season is later, and its whole habit, when the two are seen t ether, very distinct. The blossoms are produced in large leafy panicles at the e remities of the branches; they are large, rich rose-coloured and yellow, curled, a l very showy. It is a native of the East Indies, and was discovered by Dr. dllich. Introduced in 1841.

L. grandiflora.—This is another very gay species, bearing a profusion of rose-c oured flowers. The blossoms themselves are something larger than the last, but t panicles being less, they scarcely make so much show as those of *elegans*. I was found on the hill-sides, at Chittagong, in the East Indies, and was introduced l e in 1818.

L. indica.—This has been the longest known to us, and is probably the hand- nest of the whole; certainly no introduced species has yet surpassed it: its graceful nder branches, small bright green leaves, and large terminal panicles of showy e-coloured curled flowers, render it an object which cannot be passed without miration. It is a native of China and Japan, where it forms one of the most eemed shrubs, growing eight or ten feet high.

L. parviflora.—This has perhaps the fewest attractions to recommend it to our tice of any of the kinds. The panicles are produced at the termination of the nches, and are many-flowered, but the flowers are small and white, and although etty when examined, yet make but little appearance in a collection of plants. grows on the mountain-sides of the Circars, in the East Indies, and forms a reading shrub about twelve feet high. The natives are said to make use of its wood for various purposes. It was introduced into our stoves in 1818, but is no rarely seen in collections.

L. reginæ.—This is a magnificent kind, with fine terminal panicles of large ric rosy-purple flowers, and very spreading branches. It is a native of the woods the Circars, in the East Indies, and also of Java and Malabar, where it grow amongst the rocks, and forms a tree about twenty feet high. It was introduced i 1792, but has been little cultivated for many years.

L. speciosa.—The flowers of this species are about the size of those of *L. indica* rich rose-colour, and disposed in terminal racemes. They are very showy. Th plant is a native of China, where it grows to a tree, twenty feet or more high; an was introduced into this country in 1826. It is far from being common.

The cultivation of the above species may be stated as follows :—

If the plants are intended to be grown in pots, the proper *soil* for them is *tw parts* good sandy loam, *one part* sandy heath-mould, and one part well rotted leaf mould : let these be well mixed together, but neither broken very fine or sifted The pots must be well drained with plenty of potsherds, and it is advantageous t mix a portion of broken pots with the soil.

It is indispensable that abundance of *pot-room* be given, as the roots will in n case endure cramping; and it is not improbable but this has been one of the many causes of failure in the successful management of these desirable plants.

Bottom-heat is a very important item in their cultivation; the pots mus therefore be set where they will receive a genial warmth either from a flue, hot water pipes, or other vehicle for conveying that requisite. They will not, however flourish long if plunged in a fermenting medium, chiefly because the roots are liable to perish from stagnant moisture. They thrive much the best, however, if *turned out* into the open border of a *stove* near to a flue, hot-water pipe, or any other situation where they can enjoy a brisk heat at the roots. In such a position they grow with unusual vigour, and produce flowers in the greatest profusion. The only soil requisite in such a place, is a good sandy loam.

During the *season of growth* they require a high temperature and great humidity. Syringe freely every day, and give an abundant supply of water to the roots. About the end of June this large proportion of water must be gradually diminished, although a good stove heat should still be kept up, and the roots must yet receive a liberal supply of water : this will form their flowering season.

About the end of September or beginning of October, the flowering season will be over, then gradually lower the temperatnre, and diminish the quantity of water to the roots, until by the beginning of November the plants will be brought into a state of rest, when, if they are grown in the borders of the stove, they may be kept perfectly dry during the whole of the winter months, that is, from November to February. If they are growing in pots, it is requisite to remove the pots from the exciting situations in which they were placed to grow, to one more temperate, but where however they will receive no moisture, except they show signs of great fering for the want of it. If this rule be followed of keeping them perfectly through the winter, no fear need be entertained of losing them; for although leaves all fall, and the plants look naked and withered, yet when spring roaches, they burst out again with renewed vigour from this temporary torpidity, produce firm strong shoots three, four, or five feet long.

At the end of February or beginning of March, all the previous year's wood uld be pruned according to its strength, to within a few eyes of the old branches; stronger shoots to two or three eyes, and the weaker ones to within one or two es. When this operation is finished, the plants will have a naked stump-like pearance, but the vigorous growth which will follow this treatment more than mpensates for the want of ornament and extra trouble which the performance of entails.

When the plants are pruned, and begin to show signs of returning growth by e swelling of the buds, commence administering a small portion of water; but at st this must be done very gradually and with due caution, until the buds begin to rst. When these signs appear, if the plants are in pots, immediately repot them, ving abundance of root-room as before directed. After which, replace them in the aces where they grew the previous year, and as the growth advances, increase the at and moisture, and furnish them with every possible stimulant to render their velopment as rapid and as perfect as possible. By the end of June when this is mpleted, treat them again as recommended for the flowering season. They are creased pretty readily by cuttings of the half-ripened wood, which should be anted immediately after being separated, in pots of fine sand, and placed in heat der a hand-glass.

When rooted, pot them off in a mixture of light sandy loam, heath-mould, and af-mould, equal parts, and again place them in a close heat until they have begun grow, then remove and treat them in the same way as the old plants.

CULTURE OF LIMSIA ANETHIFOLIA.

This plant is a native of New Holland, in arid situations, and was introduced in 825. The best soil is a mixture of two parts heath mould, and one part light sandy oam only partially broken.

Drain well with plenty of broken potsherds, and mix a good portion in the soil in hich the plants are potted; also a few pieces of charcoal and freestone mixed through he soil is not without its use. Give plenty of root-room in potting, for if the roots re cramped in too small pots they invariably suffer—often die.

The roots, although vigorous in their growth, will neither endure great drought r over watering; it is necessary therefore always to administer this element with aution. It is advisable not to place them out of doors during the summer season, as is the custom with other greenhouse plants, but let them have as much air a light in the greenhouse during the season as possible.

Propagation is effected by cuttings taken off when ripe, and planted thin a shallow in pots of fine sand. Place the pots in a cool, dry part of the propagati house, and water with the greatest caution. In about six weeks or two months th will have struck root; they may then be planted in small pots, and again plac under a hand-glass until they have begun to grow, after which they may be expose to the air of the greenhouse.

CULTURE OF CONOSTEPHIUM PENDULUM.

This plant, like all the others of this natural order, will not bear crowdin amongst other plants of a different habit; its foliage soon suffers; it is therefor advisable to place them in company with *Ericas*, Proteaceous plants, and others whic require plenty of air and room for their delicate foliage.

If it be placed out of doors in summer, which is scarcely advisable, be particularl cautious that it stand in no situation either much exposed to winds or direct sunshine or under the drip of trees.

Always pot before the roots have become closely matted, that is, as soon as the have spread moderately through the soil; by this means a vigorous growth will b sustained, and the plant meet with no check.

The soil most suitable is a mixture of three parts very sandy heath mould and one part light sandy loam; mix and break them together, but not too fine, and mix a few broken potsherds with it.

Give a large proportion of drainage, for if the water stagnates in the least, this plant cannot be kept healthy. On the other hand, the soil in the pots must never be allowed to become dry and baked, for either the extremes of over moisture or drought the tender roots are unable to bear.

Cuttings will strike root if planted in pots of sand, and placed under a bell or hand-glass.

FLORICULTURAL NOTICES.

EW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIODICALS FOR SEPTEMBER.

Amomum vitellinum. The history of this plant is unknown. It flowered in the garden of the ticultural Society in May last, and is supposed to have been received from the East India ipany. It grows about two feet high, with oblong wavy leaves ; and the flowers are deep ow, strongly veined with red, growing in a short close spike, sessile among the uppermost es. It proves to be a stove perennial, requiring plenty of moisture and heat during its growth, afterwards to be kept nearly dry. It flourishes in a mixture of sandy loam and peat, and is ly increased by division of the roots when in a torpid state.—*Bot. Reg.*, 52.

Dendrobium Kuhlii. This handsome plant is not unworthy to be placed by the side of its r ally, the beautiful *D. secundum*, from which it differs in having larger flowers, in short, ral, few-flowered horizontal racemes. They are of a bright rose colour, and retain their freshs longer than is usual in this genus. It was introduced by Messrs. Veitch and Co., of Exeter, received it from their collector, Mr. Thomas Lobb. It is a native of Java.—*Bot. Reg.*, 47.

Edgworthia chrysantha. This shrub was found by Mr. Fortune in Chusan, and by him was t to the Horticultural Society in April, 1845. It is allied to *Edgworthia* (*Daphne*) *Gardneri*, epal plant with a similar habit, from which it differs in having longer and more slender flowers, ger flower heads, and a much more silky hairiness on the outside of the flower. It is a greense or half hardy shrub ; growing freely in a compost of three parts sandy loam and one of turfy t. A free drainage is necessary ; for although it requires an ample supply of water during the nmer months, it is liable to damp off if this point is not properly attended to. For a few weeks winter very little water is required. Being sweet scented and a plant of free growth, it may be ected to prove a useful addition to our greenhouse or half hardy plants belonging to the ural order of Daphnads. In order to make it flower, the Chinese bind the stems so as to form oop ; and this practice has been followed with success in the garden of the Horticultural ciety, where it produced its yellow flowers in the month of May.—*Bot. Reg.*, 48.

Epidendrum pyriforme. This very pretty little species was imported from Cuba by Messrs. ddiges, with whom it flowered in January last. The leaves are unusually thick and fleshy, out four inches long, on little pseudo-bulbs, which look like inverted pears. Notwithstanding its ninutive stature, the flowers are fully two and a half inches in diameter, with reddish yellow als and petals, and a pale straw-coloured lip veined with crimson.—*Bot. Reg.*, 50.

Exogonium purga. This is the true Jalap plant ; that is to say, the species of Bindweed which abits woods in Xalapa, in Mexico, whence the name ; and where the tuberous purgative roots collected, dried, and sent to Europe for medical use. The whole order of Bindweeds possess properties of Jalap in a more or less marked degree ; and if we do not employ the creeping ots, or the seeds, of the species that grow in our hedges, it is only because exotic plants are more tive. In cultivation this should be regarded as a stove herbaceous climber, which grows freely a mixture of sandy loam and leaf-mould in equal portions. After flowering it should be allowed become gradually dry ; and, eventually, may be placed (pot and soil) in a cellar or similar situan, where it is out of the reach of damp and frost, and where it may remain until the following ril, when it should again be fresh potted and started in heat. It flowers late in the autumn, and quires a stove heat at that time, otherwise the flowers will not expand.—*Bot. Reg.*, 49.

Gardenia longistyla. Another beautiful white flowering Gardenia, from tropical Western rica, where it was discovered by Mr. Whitfield. It flowered in June last with Messrs. Lucombe, nce, and Co., Exeter ; and is a handsome and most distinctly marked species with long wers and a style twice the length of the corollas, terminated by a large globose stigma. It quires the heat of the stove for its successful cultivation, and does not seem shy of flowering.—*t. Mag.*, 4322.

Ixora Griffithii. The ample foliage, the large compact cyme of very rich yellow and orang coloured flowers, with the long slender tube of the corolla, and the almost orbicular segment together with the blunt and short-toothed calyx, distinguish this from the numerous species hithert known to us of the present genus. It was introduced from Singapore by the son of Mr. Low, the Clapton Nursery, and has been, we believe, disposed of by him under the unpublished an scarcely appropriate name of *Ixora hydrangeæformis*. Its present name serves to commemorat its first discoverer, the late Mr. Griffith. It is a really noble species, and will prove invaluable t our stoves, where it requires the same treatment as our favourites of the genus, *I. coccinea* an *striata*: to both of which it is superior in the size of the inflorescence and the large leaves, som of which are a foot in length.—*Bot. Mag.*, 4325.

Lisianthus acutangulus. Seeds of this green flowering plant were sent to the Royal Garden at Kew by Mr. Purdie. The plants were raised in a warm stove, and kept in a greenhouse durin the period of flowering—the summer months. The species appear to be biennial, and is remarkabl for the unusually green hue of the flowers.—*Bot. Mag.*, 4324.

Medinilla speciosa. The genus *Medinilla*, remarkable for the beauty of the foliage, and th delicacy of the flowers, was established by Gandichand, in the Botany of Freycinet's Voyage, i honour of Don Josè de Medinilla y Pineda, Governor of the Marianne Islands, in which group th first species (*M. rosea*) was discovered. *M. speciosa*, as its name would imply, is among the mos beautiful, and perhaps exceeds all the other species, in the fine panicle of delicate rose-coloure flowers, gracefully drooping from among the rich green and ample foliage. It is an inhabitant o Java, and is among the treasures of that island sent home to Messrs. Veitch and Son, by Mr. Thos Lobb.—*Bot. Mag.*, 4321.

Tropæolum speciosum, *Bot. Mag.*, 4323. See *Mag. Botany*, t. 173 of the present volume.

Viburnum plicatum. This plant is a native of the northern parts of the Chinese Empire, an was found cultivated in the gardens of the rich, by whom it was much admired. When full-grow it forms a bush eight or ten feet high. It is a most profuse bloomer, forming numerous heads o snow-ball flowers, like the common Gueldres Rose. It will, doubtless, prove perfectly hardy i England; and on account of its neat habit, will probably become a great favourite in our gardens *Bot. Reg.*, 51.

NEW, RARE, OR INTERESTING PLANTS, IN FLOWER, IN THE DIFFERENT GARDENS AND NURSERIES IN AND ABOUT LONDON.

Achimenes *var.* A collection of seedling Achimenes have been forwarded from York b Messrs. Backhouse, all of them of the small *A. coccinea* varieties, but varying in colour greatl from each other. The first, *A. venusta*, is somewhat larger than the others, apparently raised betwix *A. roseum* and *A. patens*, and partakes, in a medium way, of both its parents in size and colour, whic is an intense purplish lilac, bright yellow in the throat. It is a prolific bloomer, foliage small dark green tinged with reddish purple beneath, the same colour extending to the calyx, stems an peduncles of the flowers. It will certainly become one of the most prized among the cultivators o the Achimenes. The second, *A. coccinea intermedia*, has fine bright scarlet flowers, smaller tha *A. roseum*, which is apparently its parent. The third, *A. coccinea superba*, fine, deep scarlet, wit slight marks down the centre of the petals, somewhat larger than *A. coccinea*. The fourth, *A. coccinea grandiflora ignea*, is a crimson scarlet, very rich and brilliant, form round, with compact clean edges, free bloomer, and is a very fine variety. The habits of the three last-mentioned varieties are very similar to the *A. coccinea* species.

Apios tuberosa. This plant we found growing most luxuriantly at Redleaf, over a trellised covered path, and flowering abundantly, though not beautiful as regards the colour (which is a dingy brown); yet from the perfume (being equal to Mignonette) we think it deserving of more extensive cultivation as a climber. In another respect it is valuable, from its roots being an article that may be eaten with safety. The habit is handsome, and as it blooms late in the season (August and September), when most of the scented flowers are over, adds another value to the plant. It was introduced so early as 1640, and is not now in very general cultivation.

AMPANULA LACTIFLORA. In the gardens of the late Mr. Wells, Redleaf, Kent, this old though fi plant was flowering most profusely, varying, according to treatment, from bushy plants one f high, to splendid specimens six feet high, completely laden with delicate pale blue tinted f ers. When seen in such a state as the latter, it makes a very handsome appearance in the f er garden.

PHYSOSTEGIA VIRGINIANA. A fine and very useful plant for the border, having long racemes f feet high, forming a compact bush, nearly the same in diameter, covered with long deep blue f ers. The specimen here noticed was in the gardens of the late Mr. Wells, Redleaf.

ERYTHRINA BIDWILLIANA. We have recently received from Messrs. Veitch, Exeter, a specimen, i lower, of this charming hybrid variety. In habit it is very neat and pretty ; blooms when not re than twenty inches high, sending forth a spike upwards of nine inches in length. The vers are of a most beautiful crimson, smaller than *E. Crista-galli,* but certainly far superior in our, and appears to flower equally as free. We hope to see this handsome variety generally tivated.

HELIOPHILA TRIFIDA. An elegant growing autumnal plant, we believe, introduced by the rticultural Society, from whom Messrs. Backhouse, York, received seeds, and who favoured with a specimen in flower. It has a slender and diffuse habit; much branched ; producing utiful sky-blue flowers in abundance. It is certainly one of the prettiest annuals of recent roduction.

IXIA SPE. NOV. Messrs. Backhouse, York, have also favoured us with flowers of a most lliant orange scarlet colour, thought to be an Ixia. It was received by them from Caffraria, and ected to prove half hardy. The flower scape is from eighteen inches to two feet high, with tant lateral racemes near twelve inches from the apex or extremity downwards, producing an ndance of bloom. The foliage is long, narrow, and very graceful.

IXORA JAVANICA. At the July fete of the Horticultural Society, Chiswick, Messrs. Veitch hibited a new species of Ixora, from Java, which will form a decided acquisition to the species eady in cultivation. The plant has large trusses of rich apricot coloured flowers, which are, en first expanded, a bright maize yellow, giving each truss a varied appearance. The lividual flower is as large as *I. coccinea,* and quite pointed at the tip of the petals. The foliage handsome ; and it is in all respects a plant to suit cultivators as a specimen.

ONCIDIUM SPE. NOV. Messrs. Loddiges, Hackney, have recently flowered a most beautiful riety of Oncid. It has flowers verging upon *O. Lanceanum* in size, and colour of labellum, ich is a deep rosy purple on the upper or narrow part, extending to the centre, when it breaks into small spots near the edge, which is white ; the sepals and petals are nearly allied to the *ridum guttatum* varieties, having a pale ground, richly spotted with brown. It is a very superior ecies in every respect.

PLEROMA ELEGANS. This remarkably handsome plant was exhibited at the Horticultural ciety's Rooms, Regent-street, by Messrs. Veitch, Exeter, who received it from the Organ ountains of Brazil. It has a superior advantage over all the species, being very dwarf ; rming quite a bush ; with neat foliage of a peculiar bright and glossy green ; the flowers are of e richest purple, almost surpassing the splendid species *P. Kunthiana,* figured in our Magazine, o. 138, and nearly as large. The blooms possess a great attraction, as they last considerably nger than most of the other species ; this quality will make the plant a great ornament to the eenhouse.

OPERATIONS FOR OCTOBER.

Since it will be impossible to calculate during the remainder of the season upon the absence frost, we must henceforth look chiefly to our glass erections for that pleasure and satisfactio derivable from paying attention to flowers, or cultivating them. We do not recommend that th flower-garden and grounds, although the number and quality of their attractions may have bee considerably reduced by severe weather, should be comparatively abandoned. Both, as well a every garden, whatever be its character as to size and situation, is capable of being rendere interesting, and indeed attractive, throughout the whole year. And now is the period to look t those matters which such a consideration involves. If no other obstacles present themselves, th season of year does not intervene to prevent the immediate commencement of such alterations an improvements as may have been determined upon. It may be, that neither of the latter are i contemplation, and, indeed, that there is little necessity for any; but we would recommend tha an examination be made, with a view to ascertain whether there is not a want of evergreens, or o those fruit-bearing plants whose ripe berries, &c., amply atone for the absence of flowers, and th introduction of which might produce a pleasing variation, if nothing else were effected.

In the absence of anything in the way of improvements, &c., the operations of the presen month are of a very routine nature. A considerable share of attention should be devoted to th production and preservation of flowers. The forcing-houses of pits will soon require to be i steady, but full operation. Bulbs to flower in pots may still be potted; and, towards the end o the month, some of the first potted ones will be getting fit to introduce into the forcing department By that time, also, Roses and many others may find their way there. While we give these directions, and although we can understand the charm of Roses, &c., in December, the culturist mus be admonished not to neglect those many things which will gratify him with their blossoms without the aid of the forcing-house being had recourse to.

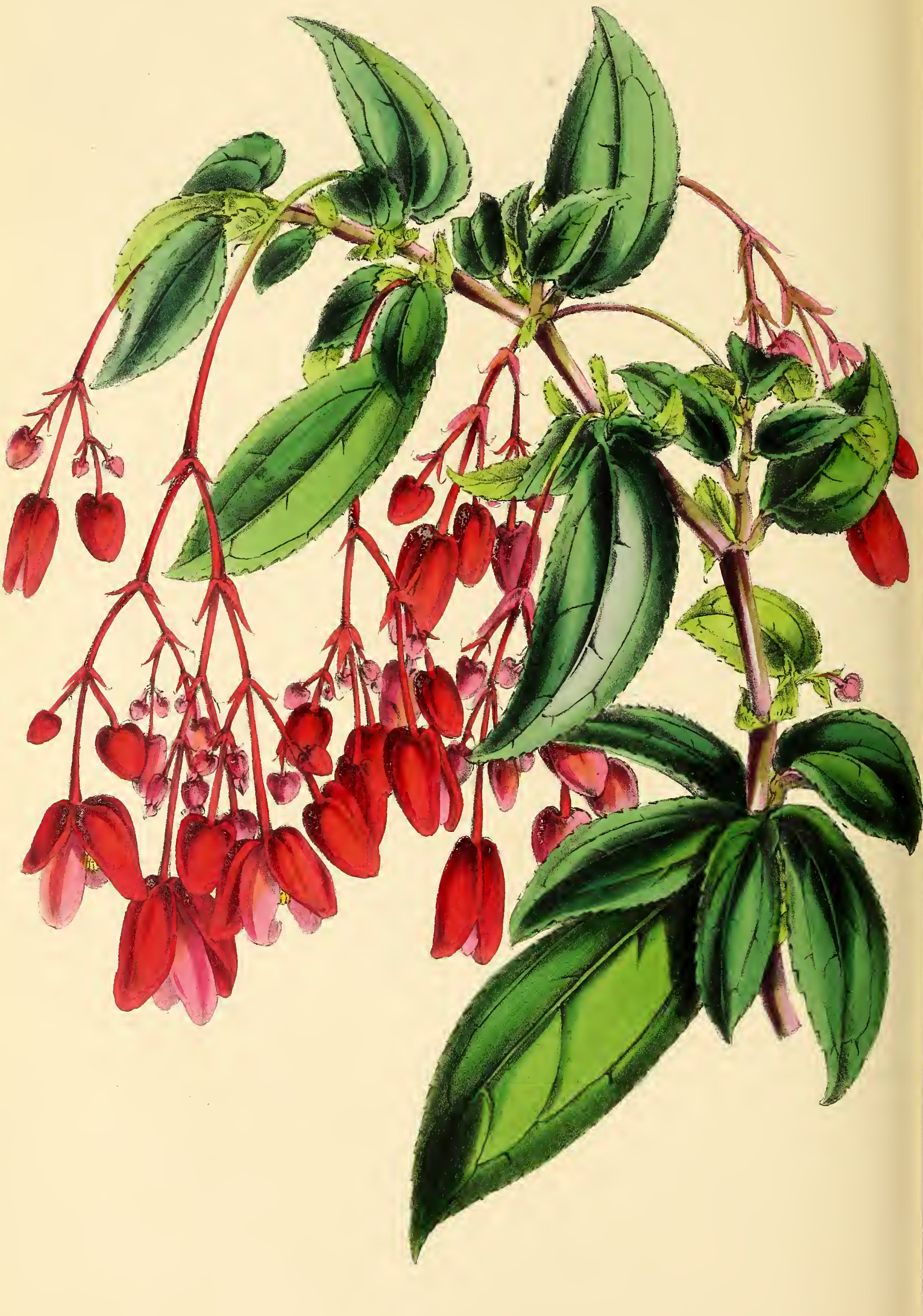
All newly-raised plants, intended to fill and decorate the flower-garden in 1848, ought to be well rooted and properly hardened off by this time, and, in short, should be in their winter quarters. But when there they must not receive unnecessary shelter, or their bursting into growth will be the undesirable consequence. Whether they are indulged with greenhouse room, or simply preserved in cold pits, shelter from excessive wet and injurious cold is the only protection required.

The state of the weather will decide how soon the saving of seeds, lifting tuberous-rooted or bulbous plants, and such-like business, is brought to a close. In the event of a prevalence of very wet weather, the latter will be better out of the ground as soon as they have become matured.

Those pot-plants which require the protection of a greenhouse, and that may have been standing in the open air up to this time, should not remain there until their last developments are "cut" with frost, but they should be forthwith housed. It is the best way to arrange all plants in their winter quarters at once, and it should always be done where circumstances will permit its accomplishment. Let great care be taken that no plants are stowed away which are infected with insects.

Stove plants generally, and Orchids, have simply to be maintained in that quiescent state into which the majority of them will have, by this time, descended. Those in blossom, and such as are growing, must be treated according to the requirement of the condition in which they are in. Do not lose any proper opportunity of giving abundance of air to the stove and Orchid house that contains those plants which are at rest.

In the flower-garden grounds, and elsewhere, let everything be perseveringly kept clean and tidy.



S. Holden, del & Lith.

Begonia fuchsioides.

BEGÒNIA FUCHSIÓIDES.

(Fuchsia-like Begonia.)

Class.
MONŒCIA.

Order.
POLYANDRIA.

Natural Order.
BEGONIÀCEÆ.

G ERIC CHARACTER.—*Male flowers.—Calyx* wanting. *Co a* polypetalous; petals commonly four, unequal. *Fe 'e flowers.—Calyx* wanting. *Corolla* with from fou o nine petals, generally unequal. *Styles* three, bifi *Capsule* triquetrous, winged, three-celled, many-see l.

S CIFIC CHARACTER.—*Plant* a shrub. "*Stem* erect, tw o three feet high, terete, succulent, glabrous, sli ly tinged with red. *Leaves* copious, distichous, alt ate, rather small, about an inch-and-a-half long, da full green, obliquely oblong-ovate, slightly falcate, ac , serrated, glabrous, the margins obscurely ciliated, oft tinged with red. *Stipules* oblong, obtuse, coloured. *Fl rs* on dichotomously branched, pendent panicles, dic ous, rarely monœcious; all of a rich, deep, scarlet colour. *Pedicels* bracteated; *bracteas* lanceolate, acuminate, opposite. *Male flowers.—Sepals* four, almost closed over the stamens; two ovate, large and boat-shaped, thick and fleshy, opposite and external; the other two smaller, oblong, or approaching to obovate, slightly concave, of a thinner, almost membranous, texture. *Column of stamens* forming an ovate mass. *Female flowers.—Sepals* five, rarely spreading, oval, nearly equal, concave. *Stigmas* six, erecto-patent, subulate, waved. *Ovary* of the young fruit white, broadly obovate, triangular, the angles winged; two wings very short, and one long, divergent; all red, and decurrent, so as to form a triangular pedicel."—*Bot. Mag.*

WE have frequently of late spoken highly of the ornamental and useful character of any species of this genus. The usefulness consists in their capability of conti ing to bloom for a very long time, and in the property of bearing their blossoms at time of the year when flowers are extremely scarce. The knowledge of this la feature, and the beauty of our present subject, and many others, was nearly u nown until the introduction of some really fine species, a few years ago, brought tl plants more immediately under the notice of cultivators and collectors.

Not any of the kinds either new or old are equal to the present subject, and no s cies is so likely to promote the growing favour with which this family is regarded. I first appeared in public at a meeting of the Horticultural Society in Regent S eet, during the autumn of last year, where it was sent by Messrs. Veitch and S , of Exeter, who obligingly furnished us at the same time with the specimen fr n which our drawing was made.

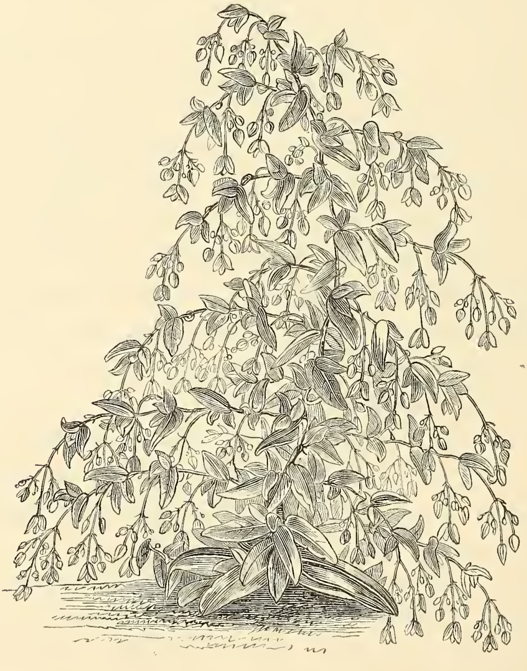
To the Royal Gardens at Kew belongs the merit of introducing this acquisition t our collections, probably in the year 1845. Mr. Purdie, late in the employ of the K w Establishment, as collector, discovered it growing in New Grenada, from w ence he sent it home.

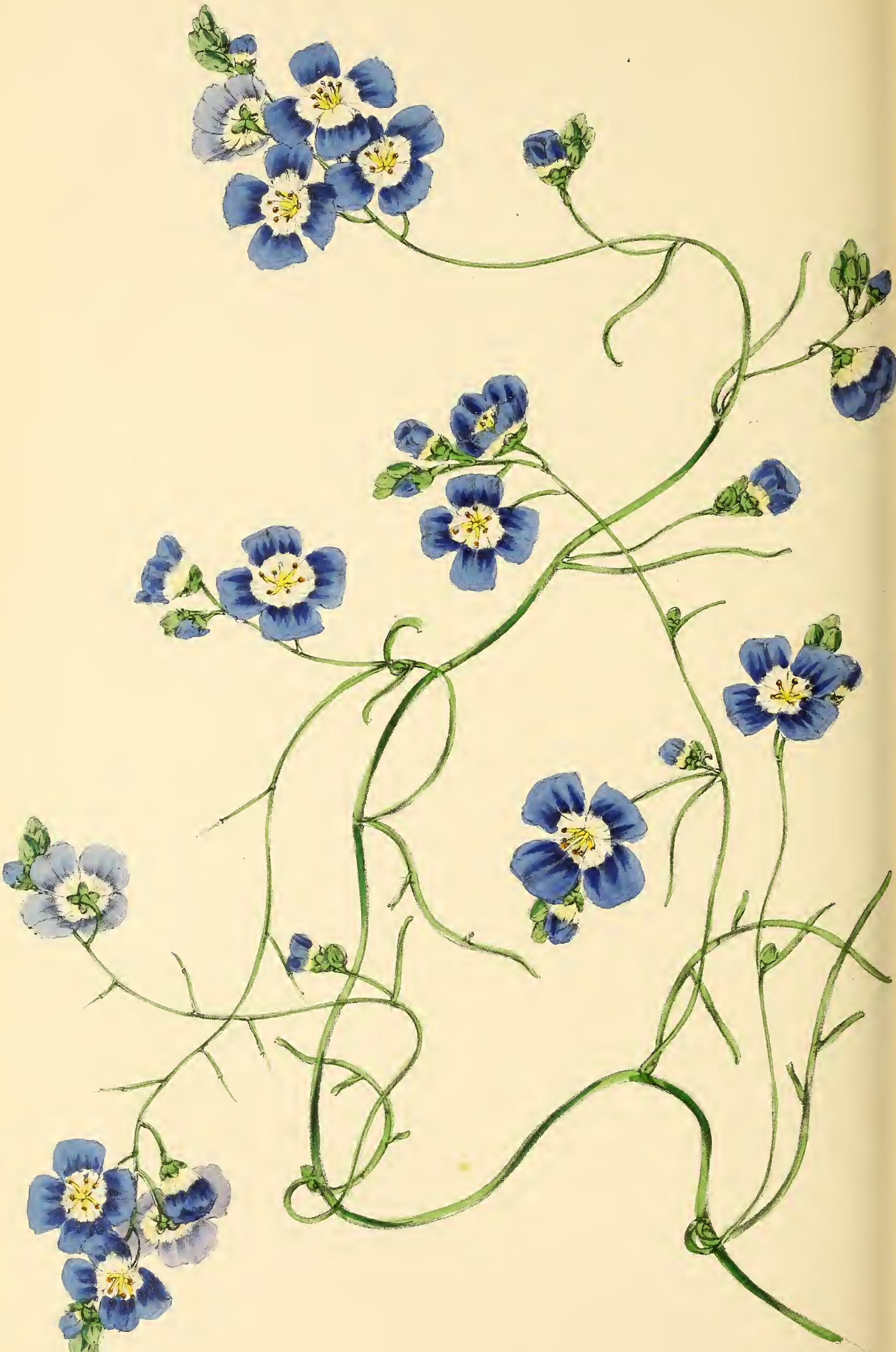
From most of its fellows it differs considerably in being more shrubby, and h ing smaller leaves. These characteristics render it, if well grown, an interesting p nt at all times, but especially so when it blossoms, particularly as it flowers t ough the most dreary parts of the year.

In cultivating this species the warmth of the stove will be required, and should be grown in a fibrous open soil, composed of leaf mould and light loam equal proportions. It has naturally a handsome habit, but this is greatly improv by stopping its branches and shoots, and tastefully disposing them as they gro Cuttings treated in the usual way are a very ready means of increase.

As plants of interest, easy management, and of a really ornamental charact the amateur culturist can scarcely select a group that would afford him more sat faction and pleasure than one composed of several of the best species. Th commend themselves to him, because of their simple cultivation, their rare beaut and their great diversity of character. The fact that the greater part are sto plants need not operate to prevent their cultivation, since notwithstanding a gen warmth is necessary for them during the period of growth, a warm greenhouse w suffice for the development of the blossoms of many of the species. Begonias a more at home, and are seen to greater advantage, when brought together in grou and are so because from the peculiarity of the foliage they do not well associate wi other plants.

The genus is named in honour of Michael Begon, an intendant of the Fren Marine, and a patron of Botany, who flourished in the seventeenth century.





S. Holden, del & Lith.

Heliophila trifida

HELIÓPHILA TRÍFIDA.

(Trifid Suncress.)

Class.
TETRADYNAMIA.

Order.
SILIQUOSA.

Natural Order.
BRASSICÀCEÆ.

ENERIC CHARACTER.—*Calyx* of four sepals, equal at t base. *Petals* four, alternate with the sepals, dis- p ed crosswise, distinct and free. *Stamens* six, two o hich are shorter than the rest. *Anthers* two celled, l sting inwards. *Carpels* two, closely connected t ther by one pistil. *Stigmas* two. *Silique* elongated, i ely oblong or oval, two-celled and two-valved. *Dis- s ment* linear or oval; *valves* flat, or in the long s ques somewhat convex. *Seeds* depressed. *Coty- l ns* two, opposite, incumbent, linear, plaited twice sswise.

SPECIFIC CHARACTER.—*Plant* annual. *Stem* herbaceous, smooth, glaucous green, dividing at the neck into many branches. *Pods* necklace-like, rather pendulous. *Lower leaves* trifid, sometimes quinquefid; *lobes* entire, filiform. *Upper leaves* entire. *Flowers* blue, in terminal racemes, sometimes in panicles; *pedicels* filiform, bractless.

SYNONYME.—Heliophila pinnata.

OF the numerous species of Heliophila which have been discovered and scribed by various botanists, twenty-four kinds are introduced into this country. ey are all natives of South Africa, and have been chiefly brought from the neigh- urhood of the Cape of Good Hope. A few are greenhouse evergreen shrubs of v growth, but the greater part are half-hardy annuals of easy culture; all very etty, and certainly deserving the whole of the attention they require.

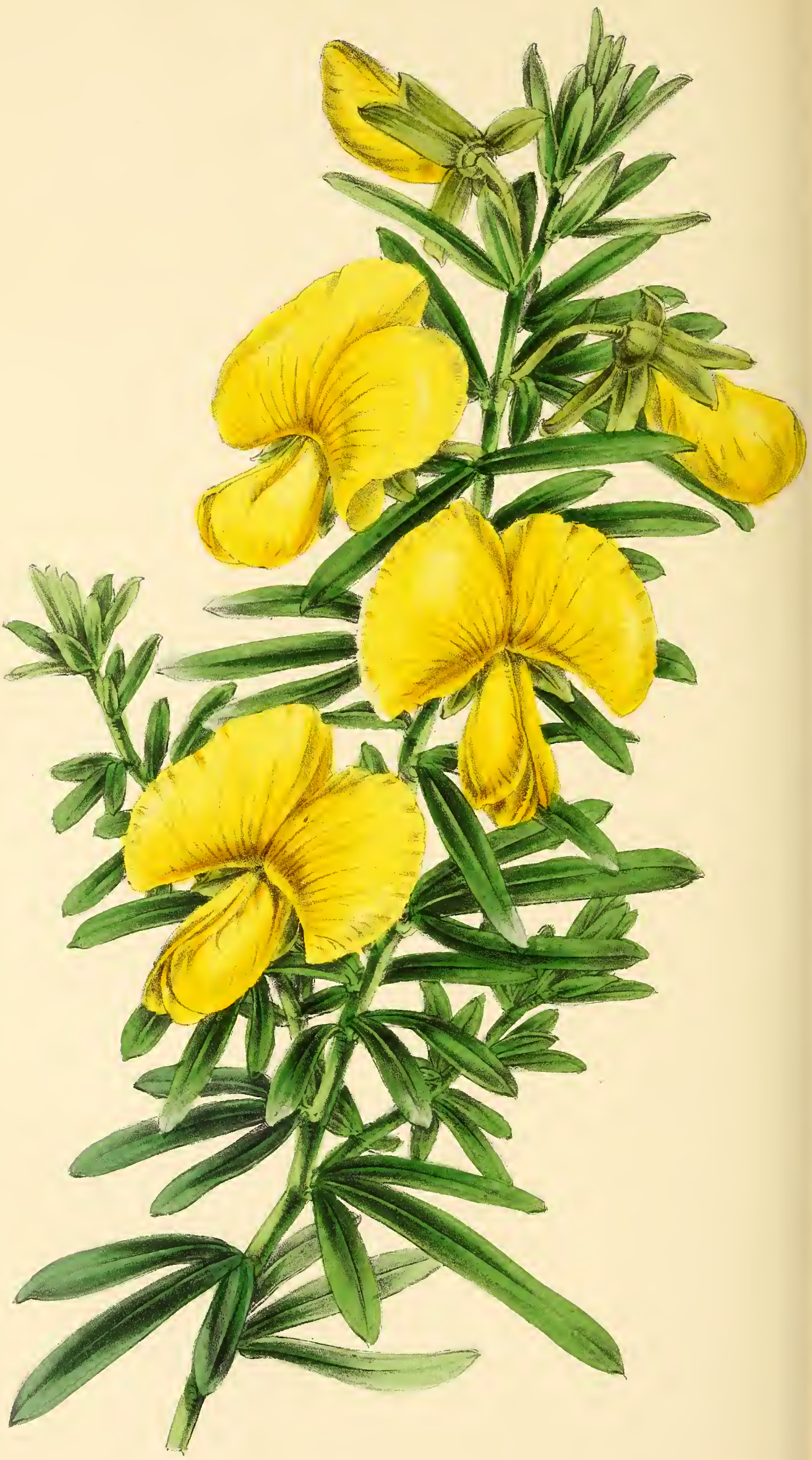
Our present subject *trifida* is not the least interesting amongst them; its beautiful ght-blue flowers are produced in great abundance from midsummer until the iddle of September; and it also forms a very superior plant when grown in a pot r the greenhouse, although by this treatment its flowering season is somewhat ortened; yet this can always be remedied by successive sowings of the seed.

The soil it requires to be grown in is a mixture of sandy heath mould, light loam, d well rotted leaf-mould, equal parts. Sow the seeds like other tender annuals out the end of February, and place the pots in a hot-bed or greenhouse. When e young plants are large enough to remove, plant them singly into 60-sized pots; d after the frosts are over in May, transfer them to the beds or borders they are occupy; or repot for furnishing the greenhouse, as is deemed most desirable.

It is a native of Africa, and was found by its discoverer growing in those xtensive sandy tracts near Cape Town. In 1819 it was introduced to Hamburgh, d from thence found its way into this country through the London Horticultural

Society, in whose gardens at Turnham Green it flowered in the summer of 184 and was beautifully figured by Dr. Lindley in the "Botanical Register, vol. xxxi t. 64. From specimens received in August last from Messrs. Backhouses, Nurser men, at York, the drawing for our plate was made.

The name of the genus is derived from *helios*, the sun, and *phileo*, to love; account of the plants growing in places exposed to the sun.



S. Holden. del. & Lith.

Gompholobium barbigerum.

GOMPHOLÒBIUM BARBÍGERUM.

(Bearded keeled Gompholobium.)

Class.
DIADELPHIA.

Order.
DECANDRIA.

Natural Order.
LEGUMINÒSÆ.

ENERIC CHARACTER.—*Calyx* five-parted, nearly e l. *Carina* of two concrete petals. *Vexillum* broad, s ading. *Stigma* simple. *Legume* many-seeded, nearly s erical, and very blunt.—*Mag. Bot.*, vol. xii., t. 19.

ECIFIC CHARACTER.—*Plant* an evergreen shrub. erect. *Branches* angular. *Leaves* alternate, nearly sessile, trifoliate; leaflets linear, rather acute. *Pedicels* furnished with minute bracteoles. *Flowers* about an inch in length, handsome, golden yellow. *Keel* bearded along the suture. *Vexillum* large, longer than the calyx and keel. *Pods* glabrous.

It is recorded in botanical catalogues that *Gompholobium barbigerum* was i roduced to this country in 1824; but it is questionable whether, if this be correct, i was not again soon lost, as we have no account of it until about three years ago. t however it may have been with respect to its first introduction, it has certainly w found its way into many collections. It is a native of New Holland.

Under cultivation nothing beyond the treatment bestowed upon greenhouse nts generally, is required. It is a robust grower, particularly when compared h *G. polymorphum*, and some others. Plants in very fine condition were exhi- ed in London last year by Messrs. Lucombe and Pince of Exeter, who are said to ve been the first to introduce the species to this country. A specimen grown by em had become a large bush, and was profusely decorated with its fine yellow ssoms. It is easily increased by cuttings.

Mrs. Lawrence's extensive and famous collection of plants, at Ealing Park, rnished in the spring of this year, the specimen from which our plate was prepared.

The soil requisite for it, is a mixture of sandy loam and peat, and the plant must and in a light airy greenhouse, like other New Holland plants, and receive a liberal pply of water during summer, but in winter must be watered with care.

The generic name is derived from *gomphos* a club, and *lobos* a pod, in reference the shape of the seed-pods.

CRÒWEA LATIFÒLIA.

(Broad-leaved Crowea.)

Class.
DECANDRIA.

Order.
MONOGYNIA.

Natural Order.
RUTÀCEÆ.

Generic Character.—*Calyx* five-parted, persistent. *Petals* five, sessile. *Stamens* ten, shorter than the petals, flat, subulate, connected by entangled hairs. *Anthers* oblong, cordate, united lengthwise to the filaments on their inner side, and terminated by a long beard. *Ovaries* five, united. *Style* from the base of the ovary, five-furrowed. *Stigma* five-furrowed. *Capsules* five, joined. *Carpels* one-seeded. *Seeds* wi an arillus.

Specific Character.—*Plant* an evergreen shru *Branches* three-angled. *Leaves* alternate, ovate-la ceolate, entire, covered with pellucid dots. *Peduncl* axillary, one-flowered, having minute bracts at the base. *Flowers* rosy pink.

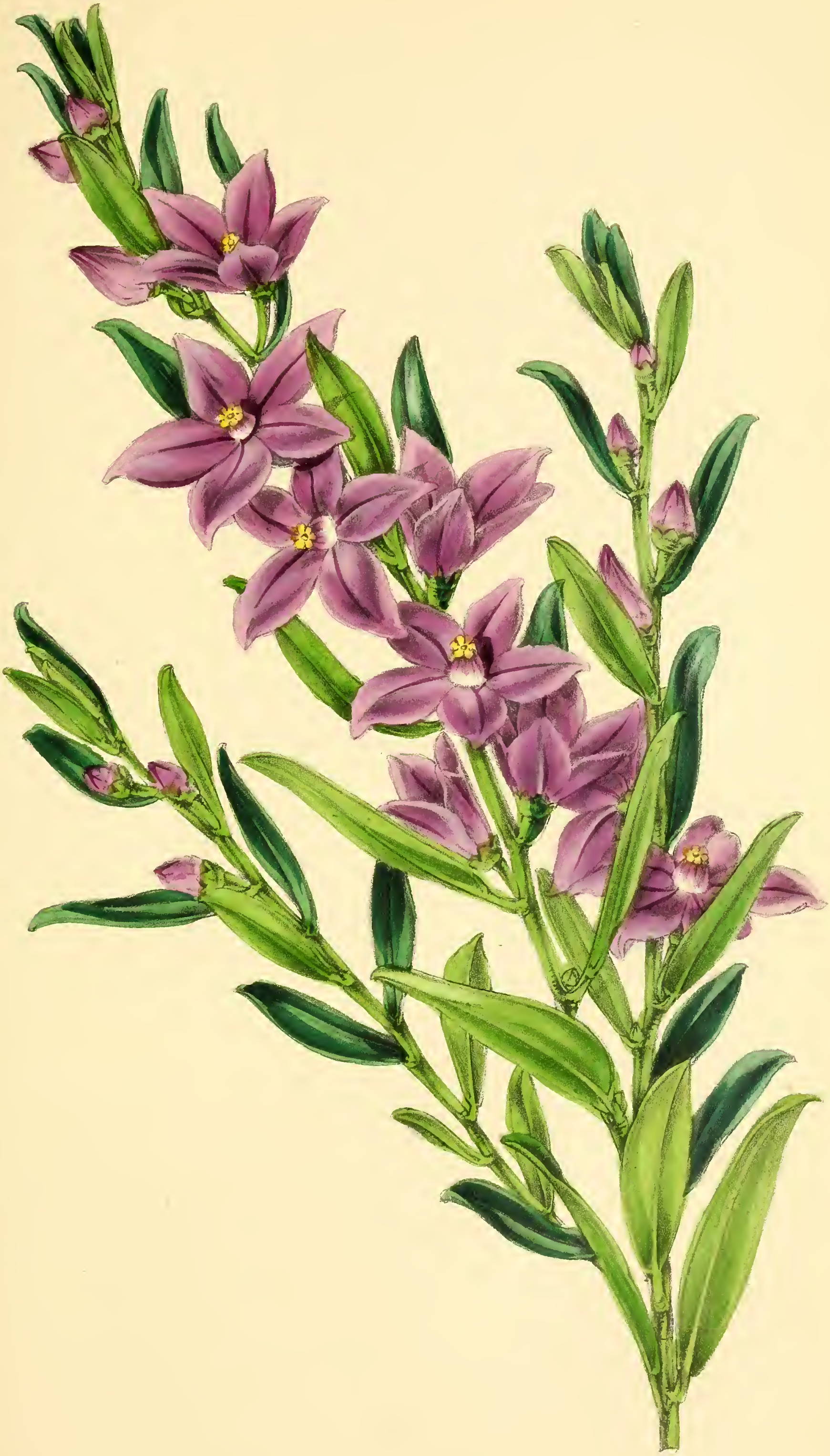
There are only two species known of this fine genus, and both are ver handsome. *C. saligna* was introduced in 1790, and figured in the "Botanic Magazine," t. 989: the present subject, *C. latifolia*, is the finest of the two, and wa cultivated in this country so long ago as 1824, but has remained so scarce, that eve at the present time, it is met with in very few collections. Both are natives of Ne Holland, and therefore require the shelter of a dry and airy greenhouse, where the continue in flower nearly the whole of the year.

In cultivation, use light and porous soil, containing plenty of fibre; lay abundanc of crocks for drainage; use moderate-sized pots in potting; syringe and water freel during summer, but administer water cautiously in winter, and place the plants nea the glass in as light and airy a situation as possible, following exactly the direction given for the culture of the various genera of the tribe *Boronieæ*.

Our drawing of this beautiful plant was made in the nursery of Messrs. Rollissons of Tooting, in the summer of 1846.

The genus was founded by Dr. Smith, and is named in honour of his frien James Crowe, Esq., of Norwich, an excellent British botanist, and a great collecto of Willows.

Rutaceous plants are rather numerous—consisting, according to Dr. Lindley' "Vegetable Kingdom," of forty-seven genera—they are all remarkable for emittin a powerful odour, which in some cases becomes unpleasant, as in the Buck plants (*Baryosma*) of the Cape. This aromatic principle is in combination wit



S. Holden, del. & Lith.

Crowea latifolia

e essential oil, with which the little sacs in the leaves and bark are replete; d which may be communicated to either water or spirits by infusion. In some ses, as in the various species of Dictamnus, this fragrant oil becomes vapourised in ch quantities, that in hot, dry weather, if a lighted candle be brought near the lant, the oily exudations ignite and burn with a crackling noise; and a similar nition takes place, but in a less degree, in several species of Diosma: this, how- ver, is only observable when the night is dark.

In addition to the aromatic essential oil, which is in some species very acrid, all *utaceæ* contain a bitter principle, varying in intensity in the different species: any of them have been found useful in medicine. They chiefly act on the ervous system as stimulants; and therefore, in New Holland, some of the settlers se the leaves of *Correa alba*, and other species, as tea; and some of the American ecies, ranking under the groups *Cusparieæ* and *Pilocarpeæ*, are febrifugal. The ngostura bark is the produce of *Galipea Cusparia*, and the barks of *Esenbeckia brifuga*, *Ticorea febrifuga*, and *Hortia Braziliana*, possess similar properties, but erhaps in a less degree.

Of the seven groups of genera into which the order is now divided, Cusparieæ nd Pilocarpeæ are wholly from America; Boronieæ are natives of Australia; udiosmeæ are from Southern Africa, chiefly about the Cape; and Dictamneæ, uteæ, and Cneoreæ, all occupy different localities in Europe. The native ountries of each of these tribes will in part point out the modes to be pursued n their cultivation.

Of the *Genera* Almeidea and Diglottis, both unknown in British collections, even species have been described of the first, and one of the last. They are all atives of Brazil, and bear flowers in panicles: they have no doubt been several imes brought into Europe, but have been again lost without flowering, so never ame under the especial notice of cultivators.

Erythrochiton.—One species only is known, *Braziliensis*. It is a fine plant, rowing in Brazil to a small tree about ten feet high, with the habit of a *Theophrasta*, he stem being altogether unbranched, and its long, leathery leaves collected at the nd. From amongst these rises a long, three-cornered flower-stalk, at the end of hich are a few large white flowers, conspicuous for their fine red calyxes. It is said o inhabit close, shady places in the virgin woods of Brazil, preferring a granitic soil. he fragrance of its foliage is like that of the Orange, and its aromatic tonic bark is aluable as a remedy for the fevers of that country.*

It need scarcely be said, that the temperature required for the successful culture f this plant is a very humid stove, as its natural habitats, and other particulars nown respecting it, will at once point out both this and its general treatment.

---

* Bot. Reg., Vol. xxix., t. 47.

The soil most suitable is a mixture of equal parts sandy loam, heath-mould, a sand ; it is not well to break it very fine, but it must be well mixed, and if a fe broken potsherds be mixed through, it will prevent the possibility of the soil, whe in the pots, becoming close and sodden, which is very disadvantageous to most plant

Select pots rather roomy, as the very habit of the plant's growth shows that i roots ought not to be cramped. If it could be turned out into a shady border in t stove, this would be far preferable. In potting, give plenty of drainage ; for althoug in its native woods, the situations it naturally occupies are damp, yet its preferen for a granitic soil indicates that stagnant water would soon injure its roots. O watering during the season of growth, little need be said : syringing may be repeate every day, and a liberal supply at the roots ; but when the plant is at rest, this mu be so far diminished as to merely amount to what will keep it from droopin During summer, shade is as indispensable for this plant as for Orchids, but i winter this must be quite removed.

Propagation is effected by cuttings, taken off when the wood is something mo than half ripe, and planted thinly in a pot of fine sand, and placed under a han glass in heat. When the plants are struck and potted off, still allow them to remai in the propagating-house, until they have recovered from their removal.

Galipea.—Sixteen species of this highly fragrant and beautiful genus are know and described, all natives of Tropical America ; but only two are *yet known* in Britis collections, although it is not unlikely several others are already in this countr The prevailing colours of the flowers are yellowish-white, tinged on the under sid with pink, and with the calyxes more or less coloured ;—*trifoliata* is the best known being introduced in 1816, and *odoratissimum* in 1829 : this latter species, althoug yet scarce, is already in a few choice collections ; it is an exceedingly fragrant plant, foun in the woods of "Rio Janeiro, by the late Sir Henry Chamberlayne. When i flower, the whole atmosphere of the hothouse is perfumed as if with jasmines, and th period of blossoming lasts some time." * Its stem grows upright and is branchless something like that of *Erythrochiton*, and it attains the height of four feet. Severa other species emit a most delicious fragrance, and are in other respects highl interesting. *Cusparia* is the species which produces the medicinal drug calle Angostura bark.

The culture of this genus resembles in several particulars that of *Erythrochiton*. Soil, potting, drainage, temperature, watering, and shade are the same ; but all the species of this genus, to flourish well, require the application of a good bottom-heat, either by means of a tank or by the pot being plunged in a bed of fermenting materials, as tan or leaves.

Lemonia.—For the culture of this genus see t. 73 of this volume of Mag. Bot.

---

* Bot. Reg., Vol. xvii., t. 1420.

Monnieria, Spiranthera, and Ticorea.—The first has only one species, *trifolia*, white-flowering annual of no beauty, discovered in Guiana and Brazil, requiring he common treatment of tender annuals. For the culture of *Spiranthera odora-ssima*, refer to *Galipea*. Seven species of *Ticorea* are described, and two of them re now not uncommon in our stoves. *T. fœtida* and *T. jasminiflora* are both eserving of cultivation; in their native countries, Guiana and Brazil, they are eputed to possess fine medicinal properties. Neither of them emit a pleasant agrance, but, especially the former, is very disagreeable when the leaves are ruised.

The cultivation of *Ticorea* differs in nothing from that recommended for *Galipea*, xcept that less shading is required, and in propagation ripened cuttings are used, nstead of being only little more than half ripe, as there recommended.

The above eight genera constitute the *First Group* or Tribe Cusparieæ, from heir agreement, in several important characters, with *Galipea Cusparia*, the type f the old genus *Cusparia*.

Choisya—*ternata* is the only species known, and is a beautiful evergreen shrub, rowing from six to eight feet high. It was found in the dense woods of Mexico, nd was introduced in 1825. Its culture is the same as *Galipea*.

Esenbeckia.—Two species, *E. febrifuga* and *pilocarpoides*, have been described, nd probably both have been introduced. The culture is the same as *Galipea*, xcept that the cuttings are made of the young, instead of ripened wood.

Evodia.—This genus, which contains three species, require exactly the treatment f *Esenbeckia*.

Geigera, Hortia, Melicope, Metrodorea, and Pilocarpus, form the *Second Group*, called Pilocarpeæ. All these are treated alike in cultivation, and are well deserving of a place in the stove.

Tribe 3—Boronieæ—is composed of plants from the neighbourhood of Australia. Some are old and well-known inhabitants of our greenhouses, as the species of Boronia—"Magazine of Botany," vol. i., t. 173; vol. iv., t. 267; vol. viii., t. 123; vol. ix., t. 123—and Corræa—"Magazine of Botany," vol. vii., t. 79 and 195; vol. ix., t. 267; and the present volume, t. 147. Others, however, are less known, although some of them have been many years in the country, as *Crowea*, the subject of the present plate, *Chorilæna*, *Cyanothamnus*, *Diplolæna*, *Didymeria*, *Eriostemon*, *Hugelia*, *Phebalium*, *Philotheca*, and *Zieria*.

The whole of these genera require, with a few exceptions, the same kind of treatment in culture. These exceptions arise from the difference in structure and hardihood of the various species. Some of them are very beautiful, and indeed the greater part deserve extensive cultivation. The two species of *Diplolæna*, it is true, possess no great share of attractions, and two or three others would scarcely deserv a place amongst a choice selection; but the remainder, when nicely grown, will mee with well-merited esteem. The *Eriostemons* are all beautiful, but they are slo growers; and their roots, being delicate, are apt to suffer from over or unde watering, and by potting in soil that binds close together. They are also difficult t strike from cuttings; their branches, when separated, are very susceptible of injury and their roots being so long in forming, the danger of loss is greatly increased With *Phebalium*, also, of which several species are in our collections, great care i requisite in watering, and the plants must also be placed near the glass in a ver airy situation, especially during winter. The *Zierias* are not hard to grow well, bu their soil must be particularly light and open, or they soon perish, and in propagatio it is necessary to make cuttings of the young wood.

The proper temperature for the whole of these plants is an airy greenhouse where they will not stand very far from the glass, or be crowded amongst plants wit a very heavy foliage.

All the slender species should be grown in a soil composed of two parts heath-mould, and the remaining part a mixture of light loam and sand; but the mor robust growers thrive better in a soil made with equal portions of light loam an sandy heath-mould. It is indispensable that the soil should neither be sifted no broken too fine, and that it should contain a good portion of fibre, that there may not be a possibility of it binding in the pots.

Place the plants in pots of a moderate size, for they delight in spreading their roots along the sides of the pots. Also, let abundance of drainage be given to each plant; if one-fourth of each pot is filled with broken potsherds and bits of charcoal mixed, it is all the better; also a few potsherds mixed with the soil, that the water may percolate freely, is always an advantage.

In watering during the summer season, give a good supply to the roots, and also syringe in fine weather; by these means and abundance of air, the growth will be greatly promoted; but on the approach of winter syringing must be entirely dispensed with, and the proportion of water administered to the roots must be no more than will keep the soil in the pots from becoming parched and dry: the foliage must likewise be kept free from dirt and insects.

When greenhouse plants are placed out of doors in the summer months, it is advisable to make these an exception to the general rule; for they invariably suffer either from too great an exposure to light, too much moisture, or from drought —one or other of which, with the very best attention, can scarcely at all times be avoided. If kept in the house with *Epacrises* and other plants of like tender habits, they will amply repay the cultivator for any extra trouble they may have given, by

ir continued healthful developments, and the profusion of flowers they will
duce.

They are propagated by cuttings of the half-ripened wood, which, although they
not strike very quickly, are nevertheless not difficult to root. Plant them in
s of sand, and cover with a glass, but do not subject them to a moist heat, or
y will soon disappear: select a cool, and rather dry part of the propagating-house,
e off the glass occasionally, to allow the cuttings to dry; and in watering be careful
ver to wet the foliage, and allow them to stand exposed for a time until they are
rtially dried again before the glass is replaced. When struck, pot them off in
dy heath-mould, disturbing the roots as little as possible, and keep them in rather
lose place until they have begun to grow; then remove them to the greenhouse,
d treat as before directed for the parent plants.

The next group in order is EUDIOSMEÆ; it includes a number of African genera,
iefly from the neighbourhood of the Cape of Good Hope. In this tribe are some
lendid ornamental plants. *Calodendron capense* is perhaps one of the handsomest
ciduous flowering trees the Cape affords; it grows from twenty to thirty feet high,
d bears large panicles of rich flesh-coloured flowers. All the others are shrubs,
rying in growth from one to three feet, with a habit not unlike *Erica*, and bearing
ite or rose-coloured flowers. The various species of *Barosma*, but especially
nata and *punctata*, are called by the Hottentots *Bucku*. The leaves are dried,
wdered, and mixed with grease, and with this unpleasant-smelling unction they
oint their bodies. The names of the genera are *Acmadenia*, *Adenandra*, *Aga-*
sma, *Barosma*, *Calodendron*, *Coleonema*, *Diosma*, *Euchætis*, *Empleurum*, *Gym-*
nychium, *Macrostylis*, and *Pachystigma*.

With the exception of *Calodendron*, which is a little difficult to propagate, all
ese genera are very easy of culture. To be successful with the former, the cuttings
ust be made immediately on the wood becoming matured; for—as the plant is
ciduous—if the wood is allowed to become too old before the cuttings are made, the
ves fall before roots are protruded, and success is very doubtful.

The soil in which the whole of the plants in this group will grow best, is sandy
ath-mould, with a small portion of light turfy loam.

Pot them after the manner of other plants with heath-like habit; give plenty of
ainage, and treat them in every respect like common greenhouse plants.

Propagation is effected by taking off the extremities of the young shoots, and
anting them in pots of sand under a glass, but without heat.

Tribe 5—DICTAMNEÆ—has but one genus, *Dictamnus*, or *Fraxinella*, a hardy
rbaceous plant, of the easiest culture in the open borders.

Tribe 6—RUTEÆ—embraces *Biebersteinia*, *Boenninghausenia*, *Haplophyllum*, and *Ruta*, none of which are remarkable for their beauty. Those requiring th shelter of the greenhouse and frame merely need to be potted in light sandy loam and are easily increased by cuttings planted under a hand-glass, either with o without heat. The hardy species may be planted in the open borders, in any ligh sandy soil.

Tribe 7—Cneoreæ—consists of *Cneorum* and *Heterodendron*. The species o both are frame shrubs, easily grown, and propagated by cuttings, as recommende for *Ruteæ*.

HABITS OF PLANTS—SEASON OF REPOSE.

We approach the season of winter, and some preparation is accordingly required. is usual to date the commencement of that season at quarter-day, at the period hen the sun, having attained its greatest meridional depression, passes into the cending signs of the Zodiac. This has been noticed in a former article, but it ill not be out of place to remind the gardener that *his* winter must commence out the middle of November, when the growth of plants having ceased, a state of st has been, in the ordinary run of years, completely established.

In our next, we propose to recur to the subject as appropriate to the middle of inter. Now it will be sufficient to attend to those preparatory steps which expe- ence has proved to be in accordance with the laws of Nature, so far as our artificial abits can be made conformable to those laws.

We have now to attend to an established *rule* which it has of late years become shionable to announce as absolute :—“ *All Nature requires rest; and every plant at the earth produces, a period of repose or torpor.*” There is plausibility in this, ecause we perceive that the hardiest weed of the ground sinks into repose, or at all vents ceases for a time to grow; but, on the other hand, the great natural agents, ose which actuate the vital principles, never become inactive. The *sun* (so far at ast as respects sensible appearances) continues its course without let or remission; ts altitudes and vitalising power vary, its light diminishes or increases according to he seasons; and thus, in proportion, it acts upon the vegetable tissues: therefore, while we admit the changes which are in ceaseless operation, we must qualify the ule, and be very cautious before an attempt be made to bring about a state of rest, which is by no means indispensable to the healthy condition of all the subjects which are introduced to our miscellaneous collections. Waiving the consideration f the hardy plants cultivated in the open garden, we come at once to the subjects hat are indicated by the above title.

The *habits* of plants must greatly depend upon peculiarity of climate. How hen can we expect that the tenants of our artificially constructed houses should onform simultaneously to one uniform method of treatment and discipline? And is it possible that a state of rest should be induced among hundreds of individuals whose characters are remote as is their natural place of abode?

The only mode of treatment (we mean generally) that can be adopted at the approach of our cold and misty weather in November, consists in a gradual abatement of water, to an extent that shall be just sufficient to maintain the verdure of the foliage without flagging.

When *evaporation* from moist surfaces, either of the mould or floor, is proved by any good hygrometer to be nearly at an end, it is clear that little water can be required. A very simple instrument will be found to answer the purpose in most ordinary cases. Let a piece of the best whipcord fifteen inches long be completely saturated with strong salt brine; strain this against the face of a strip of we planed oak-board eighteen inches long, and fasten each end to two brass-heade nails, so that the string be tight while wet. To the board let another piece of tl same wood be fixed, and at right angles with and below it, like the drawing-master cross-shaped square. This strip of wood need not be above six inches long, and it is to be pasted a piece of paper graduated as a scale of equal parts, to be determine by the expansion of the salted line when made perfectly dry before the fire. silk line fastened to the middle of the cord, having a large shot attached to the en of it, will serve as an index at all times; and at the season alluded to, when vaporous atmosphere prevails, the salted cord will contract and become so tight, a to raise the weight to its upper limit marked zero—0. This instrument, which wa figured some months ago in the *Gardeners' Chronicle*, is extremely sensitive; marks the slightest variations of moisture in a house, even those occasioned by passing cloud over a bright and powerful sun. It also proves how extremely difficul it is to maintain vaporous saturation during the existence of actual sunshine.

Having the means at command to ascertain with a degree of accuracy th moisture of any plant-house, we are in a position to investigate the habits of th plants usually cultivated in large establishments, and to arrange them under severa heads. Not, however, to indulge too much in minutiæ, we will restrict these to five namely:—

1. Plants of the Orchid tribe, *Orchidaceæ*—Orchids.
2. Plants whose organisation is strictly succulent.
3. Plants, miscellaneous in structure, natives of warm climates, and therefor always requiring heat—*Stove plants.*
4. Plants not absolutely tender, but requiring protection and impatient o moisture.
5. Greenhouse plants of the hard-wooded families.

As this investigation refers entirely to the treatment which is indicated by the approach of winter, it will be needless to take any particular notice of the various erections in which the subjects are deposited; each will, therefore, be considered as a separate and individual planthouse.

1. *The Orchids.*—These plants, by the peculiarities of their organisation and natural situations, plainly indicate that their abode must be select, and their mode of treatment arbitrary. Orchids are divided into two distinct classes, the *Epiphytal* and the *Terrestrial.* The former grow upon trees in the tropical forests of Asia and South America. "They establish themselves upon the branches, and either vegetate amidst masses of decayed vegetable and animal matter, or cling by their long roots to the naked wood, from which, and the humid atmosphere, they exclusively derive their food." Great heat, a vaporous atmosphere, and deep shade, therefore, are the elements of their life.

The *terrestrial Orchids*, on the contrary, require a little soil, such as the earth of decayed mosses and wood, and fibrous heath-soil, interspersed with pieces of broken dstone. "In general," says Dr. Lindley, "in hot countries, the species are iphytes, while the terrestrial orchids that grow on the ground are rare and nown," they require a colder climate, and are found abundantly in North erica. Every cultivator should peruse the articles that are found in so many vious pages of this magazine, and the larger works by the pen of Dr. Lindley, d in other more recent publications. When every known fact is taken into sideration; when it is also seen that at this declining season of the year numbers superb species are blooming or coming into flower, how can it be conceived that tate of torpidity or rest should be induced—much less forced—upon such by itrary means? The attempt would be equally irrational and injurious! We struct an orchidaceous house, we are constrained to do so; but herein we roduce the natives of various climes and habits; the gardener, therefore, has cific duties to perform; his eye must be everywhere; and so far as artificiality on one hand, and general principles on the other, are kept in view, the discerning tivator must be ever on the alert to attend at once to the requirements of each particular and individual species. The writer was lately favoured with a view of Messrs. llisson's houses at the Tooting Nursery, and therefore he can confidently refer to article upon the "The Culture of Orchideæ," as practised in that fine establishment, which is given at pp. 45-6, vol. iv. of this Magazine. To many persons, wever, the following extract may be still acceptable:—" Messrs. Rollisson grow eir Orchideous plants in a mean temperature, varying between 65° and 75° Far., th a moderate degree of moisture, and by thus avoiding extremes, they cultivate em to a degree of perfection to which few attain." Their house has a span-roof, d runs in a line from north-east to south-west; when we saw it, although the day s cloudy and showery, the span-roof was shaded with a light covering, the paths d been recently sprinkled, but there was no appearance of drip or wet upon the ants, the heat was soft, moist, and oppressive, so far as closeness and the peculiar int odour of the bloom were concerned; but the thermometric temperature from e hot-water iron pipes at noon did not exceed 72° to 75°.

" Down the centre there is a brick pit, which is filled at the bottom with brick-bbish, and towards the surface with old spent bark or coal-ashes, and on this, the rgest plants are elevated to within three or four feet of the glass; all round this t there is a path which is paved with stone, and between this path and the outside alls, there are stages on which are placed the young and small plants, among which re a few large ones."

Some years having elapsed, numberless species have been introduced, and many *piphytes* with pseudo-bulbs growing on blocks, &c., &c., are now suspended from e rafters. On this subject, and on other modifications, a future inspection may nable us to communicate further information in the next number. At present what as been written will suffice to point out the object of this cautionary article.

2. *Succulent plants.*—The *Cacti*, *Epiphylla*, and the like, may be taken as xamples. They transpire little, and in general require no supply of water during

the silent months. *Epiphyllum truncatum* must be considered an exception, as th species and its varieties generally blossom at the commencement of winter.

These succulent tribes have been usually consigned to the *dry stove*, a hou wherein a temperature of at least 50° to 55° is kept up, and no evaporati material is ever permitted to be present. A dry atmosphere at a heat 10° lowe may be deemed perfectly safe. Most of the succulents will also prosper in a sun room of the dwelling-house.

3. The *Stove-plants* being natives of tropical climates are, doubtless, obedie to the original principles of their vital action; hence the constitution and temper ment of plants, natives of opposite tropics, scarcely fail to be governed by differe laws. Many tender plants, so far from being at rest, are now actually in full vigou their foliage and blossom beautiful and perfect: take the *Ixora coccinea* as a example, with hundreds of the other finest evergreens. The heat of the plant sto may be gradually reduced to 60° by fire-heat as its maximum; and here we woul recur to Mr. Meek's house at Nutfield, a double span facing nearly north and sout and which retained nearly perfect equability of temperature throughout the rigou and gloom of the last protracted winter.

4. *Plants* not quite tender, but impatient of moisture. We take the Pelarg niums as an example, but claim the undoubted right to assert that while such jui species demand much air, a dry atmosphere of about 42°, and a great diminution water, not one of them should ever become droughted so as to cause a laxity flagging of the foliage.

5. The *Hard-wooded* and hair-rooted tribes.—Here again drought and an ari condition of soil cannot be permitted. Cold air and plenty of it, a dry house pit—but absence of frost—these are the conditions. Heath-mould is the stapl of their soil; if that become heart-dry, who can temper it again? A ball so parche repels the approach of water, and from that moment the plant deteriorates.

To sum up the whole of the evidences which have been adduced, we observe i few words, that in the abstract there is no such thing as the safe induction of a artificial degree of repose, and Nature will point out the steps in which the gardene ought to follow. The health of each individual is the sure index; growth, constrained growth, is ever attended with undue elongations and poverty of colour *that* is not health. The tribes of *Gesneræ* may be made to grow all the winter but in nine cases of ten, they dry off and disappear. Such plants ought to be kep dry, their juices are locked up and at rest. But others—deciduous shrubs—are no internally silent, and should not be suffered to become dry. Wet ground in th open garden never injures any shrub whose tissue can sustain an ordinary frost why then should we act in opposition to the laws of Nature? It is our office an duty to protect, not to reduce our artificial treatment to an absurdity.

ACTS, HINTS, AND EXPERIMENTS ON THE MANAGEMENT)F VARIOUS TENDER PLANTS IN THE WINTER SEASON.

Last month we concluded our remarks with a promise to return to the subject, ıd discuss it in its relation to the classification of plants in greenhouses, &c. We all now proceed to our task, first making some general remarks, illustrative of ıat may be accomplished with certain plants by departing from what are considered actical *rules* in their management, and then offer such general remarks as we nsider of importance in the winter treatment of certain plant houses.

In plant management there is not a greater fallacy, or one more calculated to tard the progress of good cultivation than that which supposes and inculcates the ctrine that plants of all kinds must be brought into a state of rest about this ason, and that on no account must any attempt be made to excite these to new, or en to enable them to complete their growth, after the present time. If the advocates this doctrine would just take time to consider, and would calmly examine the llections under their own management, or that of their neighbours, they would, all probability, find that many late-flowering hard-wooded plants, such as the various *icolor*, *ampullacea*, and other Heaths, with Dillwynia, Pimelea, Zichyas, and many her greenhouse plants, have scarcely commenced their season's growth at this time, ıd that, therefore, to endeavour to stop, or not encourage them—of course, suiting .e encouragement to the season, and amount of light—would be the height of surdity; and yet this very doctrine has been inculcated since the days of John bercrombie, and is annually repeated by the calendar writers of the present day, ith as much solemnity as if it was not a natural law that evergreen ligneous plants, ter producing one set of flowers, should commence to make wood to produce ıother set, and that consequently they should receive assistance from the cultivator the very time they require it, be that time mid-winter or mid-summer.

Every person who has grown the tuberous-rooted species of Tropæolum knows w much more freely they grow during the winter than at any other season of the ar, and those who have been the most successful in their management are aware ıat they grow much more freely even in winter, in comparatively dark, than in uses where they are exposed to an excessive amount of light. And why is this? -because in their native habitats they are under-growths, scrambling over low ırubs, and partly shaded by trees of larger growth. But, when they come to this untry, we forget these things, and, knowing they are from countries where the sun ıs more power than with us, we place them under circumstance which we consider advantageous as possible, but which, in point of fact, are positively injurious to ıem. To test the accuracy of this statement, let any one who has two plants start ıe, at the present time, and place it in the darkest corner of the greenhouse, of urse not too far from the glass, and let the other be started in March next, when it can have all the supposed advantages of excessive light, and he will find that wh we have said is perfectly true. Scores of other greenhouse plants might be me tioned which obey the same law, and until our collectors describe the exact positio in which they find the plants, such as whether in light or shady situations, or dam or dry, or high, or low, we shall continue to grope our way to success in the sam state of happy ignorance.

Of plants which grow in the most admirable and satisfactory manner during th winter season no stronger illustration can be adduced than that of the genu Pimelea. These plants will do more in three months during the dull weather winter and early in spring than they can be made to do in six months at any othe time of the year. Indeed, during the hot, dry weather of summer, it is almos impossible to induce them to make anything like healthy and vigorous progress, eve though they be placed behind a north wall, and every endeavour be made to rende the situation as suitable to them as possible, by sprinkling, shading, and bringing int play all the devices generally employed to generate a moist, healthy, and growin atmosphere. These plants, especially the more delicate ones, such as *P. rose Hendersonia, hispida, &c.*, seem to hate a hot situation and an unclouded sky; bu place them in a cool and rather damp pit, where, with a free interchange of air, the can, from the end of September to the return of spring, be kept at a temperature about 40° to 45°, and where the atmosphere can be kept sufficiently moist, but no wet, and they will grow with vigour unknown to them in any other situation. Th reason of this is, that these plants under powerful light produce flower-buds almos before they have made shoots half-an-inch long, and hence they cannot grow; bu place them under circumstances where the flowering principle is placed in abeyance or excite them at a season when the sun's rays impinge upon our earth at a oblique angle and there is a want of bright light,—the growing principle is alon excited, and the result will be progress of a very satisfactory kind. Plants thu treated may be stopped five or six times in the course of the winter, and will eac time produce abundance of vigorous shoots, but in the summer it is almost impossibl to get them to produce two shoots where they will send forth six or eight a this season.

This, I have no doubt, will appear a very singular doctrine to many, but mor especially to that class of cultivators who would make plants rest during the winter whether they are disposed to do so or not, merely because such treatment accord with their preconceived notions of what, theoretically, we are taught to conside right. Practice however tells us that general rules in gardening, as in every othe branch of knowledge are subject to exceptions, and the observant cultivator who use his eyes as well as his head, will require very little experience to discover that many plants which he has looked upon as difficult to cultivate under general rules will grow with great freedom if he assists them at the time when they appear most inclined to assist themselves.

It will always be found that the most difficult plants to cultivate make an attempt

grow at some particular time, and if they are assisted at that time by (if in
e winter season) a little additional heat, a closer or moister atmosphere, or in any
her way the experience of the cultivator may suggest, it is very likely that he will
tain his wishes at a time and under circumstances which previously he had no
nception of. This points out the importance of close and diligent observation, and
e indispensability of great experience and untiring study, to make a man a first-rate
ltivator. It also accounts for the marked success of many men who force
emselves into public notice as superior gardeners, and who know nothing of the
eory of their success, except what they have gathered from their daily practice,
t who sometimes rise up and put to shame those whose superior scholastic
tainments ought to have placed them in a more forward rank.

In endeavouring, however, to assist a delicate-growing plant, more especially in
e winter season, it must always be borne in mind that plants which are consti-
tionally delicate do not like extreme changes at any time, or of every kind; and
nsequently, though a plant may be benefitted by five or six degrees additional heat,
ry possibly an increase of ten or twelve degrees in the temperature of the house
ould be positive destruction to it. It will therefore always be wise, in subjecting
reenhouse plants, especially delicate-growing ones, to more heat than what it is
stomary to give them, to do so gradually, and so that they experience no sudden
ange—at least not until such time as you have satisfied yourself by experiment
at what you are about to do is quite right. As a singular illustration of what may
e effected with a very difficult plant by increased temperature at what would appear
very unseasonable time, we have for some years past been in the habit of subjecting
e whole of our Gompholobiums to the temperature of a cool stove, or intermediate
ouse at this season, and we find that they will make more growth under such
ircumstances during the winter, than it is possible to induce them to make in double
he time in the summer season. This is more especially the case with the most
ifficult plant in the whole genus, *G. splendens*, the beautiful bright-yellow species,
hich every person admires, but which at the same time very few, even among the
est cultivators, can succeed in getting into anything like vigorous growth. Some
ime back, however, we put a plant, as a kill-or-cure remedy, into regular stove
eat, and, to our great surprise and gratification, it directly started into vigorous
rowth, and continues to progress at the rate of three or four inches per week, the
hoots being strong and healthy, and what is more remarkable, the foliage particu-
arly strong and fine. Generally, the foliage of this species is small, crumpled, and
iseased, which made it very objectionable; but grown in stove-heat, the plant
romises to become not only manageable, but really a very great acquisition to
ollections. We keep the plant at the coolest end of the stove, and when it has
inished its growth we shall remove it into the intermediate house, and from thence,
fter a time, to the greenhouse. Here, then, is the key to the cultivation of one of
he most beautiful climbers in creation, a plant which every one admires, and which
very person who has a stove may now cultivate with success.

From the preceding remarks, and also from suggestions which have been throw out from time to time in this *Magazine*, it will be seen how exceedingly difficult it i to draw a line of demarcation between stove plants and greenhouse plants, and i our artificial treatment, how egregiously we err in supposing that because a plan comes from a temperate climate, it will not bear a considerable amount of heat, o because another plant may come from a tropical country, it will not submit withou injury, under certain circumstances, to a considerably lower temperature than wha it was accustomed to in its native climate. We are quite aware that constitutionall a plant cannot be changed, and there is not an instance on record of any plant being able to resist uninjured a temperature one degree lower than what it woul the day it was introduced into the country. True, we have treated plants as tende which subsequently been found to be quite hardy, and by unnatural treatment, suc as stinting and starving, we have rendered certain plants able to resist for a time a absence of heat (or amount of cold), which would have been certain death to thei more free-growing compeers; yet this has only been a result of bad management and therefore cannot be regarded as a proof of the change of the natural constitutio of the plants.

There cannot be a doubt but that many plants which we generally subjected t greenhouse treatment, would, especially in the winter season, be much better in warmer atmosphere, as for instance, those which we have enumerated in thes remarks, and many more which might be mentioned; while of those plants whic are commonly regarded as stove, many would, during their dormant season (th season after their bloom is set), be materially benefitted by a temperature somewha lower than we generally give them. During the last winter the writer kept a plan of *Stanhopea tigrina*, a stove Orchid, in a greenhouse temperature, and not carin much about it, in the summer, at the time of turning the other greenhouse plants ou for this season, it was placed in the open air, where it continued to grow in a satisfactory manner, making both healthy roots and leaves, and in July it threw dow a strong flower-scape, which would have produced five flowers, had not a frost, o the 2nd of September, cut short its further progress. We think the time is no very distant when a certain number of the most hardy Orchids will be wintered in the warm end of the greenhouse, and will decorate that house with their singula and beautiful flowers at a time when its other occupants are in the open air.

It therefore appears pretty clear, that to ensure first-class cultivation of both greenhouse and stove plants, the great desideratum is an intermediate house, which may be kept at a temperature suitable to the more tender greenhouse plants and which at the same time will not be too cold for many of the more hardy stove plants. The minimum temperature of this house by fire heat, would be from 45° to 50°, through the winter, while in the day time it might be allowed to rise ten degrees higher, giving plenty of warm air at all times, and keeping the atmosphere rather moist than otherwise. Here a great quantity of very valuable plants would be at home, and here too, many plants which generally as greenhouse plants are found fficult to manage, would be found to grow to our perfect satisfaction. Those who nnot spare a house for this purpose, should devote a good sized pit to it.

The intermediate house would take many plants generally considered greenhouse ants; but still as many early-flowering greenhouse plants require to be kept cool retard their blooming season as much as possible, it will be well to arrange the ants in the greenhouse so that those which require it may be protected from aughts or cold currents of air, while others may be fully exposed to a free flow of esh air, at every favourable opportunity. Thus where there is no better accommoation, such plants as *Boronias*, *Gompholobiums*, *Leschenaultias*, *Pimeleas*, *Eriosteons*, *Polygalas*, and the like, must be placed at the warm end of the house; hen may follow, *Chorozemas*, *Phœnocomas*, *Aphelexis*, *Zichyas*, and similar plants, hile the cold end will be occupied by *Azaleas*, *Heaths*, *Epacrises*, and other hardy lants, which will not be injured by a free exposure to air, even in mid-winter.

Heaths, however, when it can be so managed, should always have a house to hemselves, as it is impossible to do justice to them and other greenhouse plants in he same house, heaths not liking a fire heat of more than 40°, while to do greenouse plants justice, the temperature should never fall below 40°, except in unusually evere weather. Indeed for a general collection of Heaths two houses should be sed; one to take the free-growing kinds, such as the ventricosa's, vestita's, perspiua's, hybrida's, and other soft-wooded kinds, which delight in a free interchange of ir and a rather damp atmosphere, and the other to contain those hard-wooded pecies which, to prevent their being infested with mildew, must be kept in a dry tmosphere. Of these we may enumerate such as Massonii, ferruginea, gemmifera, ristata, ampullacea, tricolor, and their varieties. Heaths should never be subjected o fire heat except in cases of absolute necessity, and we would at any time rather ee the thermometer at the freezing point on opening the house in a morning than t a temperature of 40°. Heaths detest fire heat, and therefore where it can be o managed it will always be found better to protect the Heathery by external overings in severe weather than to use fire heat except under the most necessitous ircumstances.

The stove, where an intermediate house is used, should be kept at a minimum temperature of from 55° to 60° during the dormant season; but when the whole collection is kept in one house, it will be advisable to keep the dormant plants, such as *Ixoras* which have set their bloom, *Dipladenias*, *Allamandas*, *Stephanotis*, &c., at the cold end of the house, where they can have abundance of air in favourable weather, while the growing plants must be kept at the warm end. Endeavour to keep a gentle bottom heat, and then you need not fear a low atmospheric temperature. The atmosphere of the stove should always be kept moderately moist, especially when strong fires are used, and give all the air possible in favourable weather. These hints, we trust, will be found of service to amateurs and those who have not devoted much attention to the winter management of the better kinds of stove and greenhouse plants.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIODICALS FOR OCTOBER.

Abelia floribunda. Noticed page 188 of our Magazine. The introduction of this prett little pendulous shrub to our gardens was through the nursery of Mr. Booth, of Flottbeck, nea Hamburgh. He obtained it from Rathsack, a Dane, who was sent to Mexico by the Danish Government, and whose plant, purchased by Mr. Booth in 1842, was named "Shrub with the re bell flowers; Mirador."—*Bot. Reg.*, 55.

Achimenes pyropæa. A charming little plant, in an intermediate form between *A. coccine* and *rosea*, having the bright scarlet flowers of the former, and the habit of growth and foliage o the latter. In brilliancy of colour it far surpasses either. In cultivation this species has th advantage of coming much earlier into bloom than the old *A. coccinea*, which seldom can be brough into flower before August, which is too late for summer exhibitions. It is a native of Guatemala whence it was lately introduced by Mr. Skinner.

Achimenes Skinneri. This is a very handsome and distinct species, forming a link between the tall and dwarfer kinds, being exactly intermediate between *A. grandiflora* and *hirsuta*. The flowers are about the shape and size of those of *A. grandiflora*, and, like them, are quite flat and round; the eye is large; the throat yellow and spotted; and the spreading limb a bright rose colour.—*Hort. Jour.*, *vol.* ii., *p.* 293.

Æschynanthus longiflorus. An eminently handsome plant, closely allied to *Æ. speciosus*, but unquestionably distinct; the differences being equally apparent in the dried native specimens as in the living ones. Much of the beauty of *Æ. speciosus* is due to the varied colour (red and yellow) of the corolla; in the present, to the rich uniform puce of the entire flower. Here the mouth of the corolla is much contracted, with the segments or lobes erect: the style scarcely exserted beyond the corolla, the stamens very much so;—in *Æ. speciosus* the style is very much exserted, the stamens scarcely so at all. It was introduced by Messrs. Veitch and Son, of Exeter, from Java, through their collector, Mr. Thomas Lobb.—*Bot. Mag.*, 4328.

NEW, RARE, OR INTERESTING PLANTS, IN FLOWER, IN THE DIFFERENT GARDENS AND NURSERIES IN AND ABOUT LONDON.

Acacia linifolia. In the gardens of the Horticultural Society at Chiswick is now flowering a very remarkable and singular-looking *Acacia*; particularly from its habit, having narrow leaves two or three inches long. The flowers are globular, similar to the other species in form, and are produced in abundance. When in good flower, the plant is both graceful and interesting, and certainly worth cultivation.

Calomeria spe. nov. A very useful plant of the Aster family, which blooms so late as September and October in the flower-garden, is decidedly an attraction. The individual flower perhaps may not come strictly within the notice of the florist, from its petals being thin and open, though it produces the bloom freely, is a delicate lilac colour, and about an inch and a half in diameter. In the nursery of Messrs. Knight and Perry, we found it beautifully in flower.

Conradia floribunda. A new genus, evidently allied to the Gesnera family, is now in flower in the nursery of Messrs. Knight and Perry, Chelsea. The plant is very neat and small, leaves the same, and of a varied and rich green, specimens having upwards of a dozen flowers expanded, not being above two inches high and four inches in diameter. The flower about an inch and a half long, of a deep though rich scarlet, shooting out from among the rich foliage makes it one of the prettiest little plants we have lately seen.

Dipladenia nobilis. A handsome and graceful species lately developed its flower in the stove of Mr. Glendinning, Chiswick. The plant has a large hard woody tuber of a dark brown colour, two or three inches in diameter; from the upper part or neck the shoots are produced, which after running three or four feet the flower spike makes its appearance, holding six or more blooms of a beautiful white, slightly tinged at the edges with a rosy pink. The colour of the throat is a ep carmine, which extends down the centre of the petals, gradually shading off until lost in the iite, forming a star-like appearance ; at the bottom of the tube there is a band of dark chocolate riding a bright yellow from the carmine. The flower is two inches and a half long, length d spreading to about two inches in diameter. It has beautiful foliage of a bright glossy green, ich ribbed ; and is a native of South America.—Professor Lindley, while referring to the above, the Horticultural Rooms, stated, that there were a great number of plants which had been sent to this country, under the name of Echites, and from their treatment not being understood, were doubt thrown away, from the difficulty of getting them to bloom. He cautioned parties on ceiving seeds under the name of Echites to keep them, as there were few of the species but what ere worth the most extensive cultivation.

Heliotropium hybridum Voltaireanum. Mr. Cattleugh, of Hans Place, Sloane Street, Chelsea, s this fine variety in good flower. It is similar in form and size to the common garden variety, ffering in the great essential,—viz., colour, which is a deep violet purple ; and has the same deli- ous perfume. The foliage is a dark though rich green, and the variety is everyway a most useful d ornamental one both for the green-house and bedding out.

Justicia carnea. In the same collection we found this fine plant remarkably well grown and owered. The specimen was more than three feet in diameter and about two feet high, densely led with foliage, rising above which were an immense number of heads of bloom of a delicate nky flesh colour. The plant was most attractive from its excellent cultivation.

Miltonia Clowesii. At the October meeting of the Horticultural Society, in their rooms, Regent reet, was exhibited a noble specimen of this beautiful *Miltonia,* sent by Mr. Craggs, gardener to r Thomas Acland, Bart., Killerton, Devon. The specimen was one of some years' growth, and fine health, capable of supporting the large mass of blooms it produced, having upwards of nine- en flower-scapes laden to profusion with its gaily variegated flowers, forming a picture such as to ake us regret we do not see it oftener ; and at the same time affording us an opportunity of ecording the skill of the exhibitor.

Plumbago sp. nov. In the nursery of Messrs. Knight and Perry, King's Road, Chelsea, there now flowering one of the most superb-looking plants it has been our lot to record for some time ast. The genus nearest approaching it is the *Plumbago,* but most probably it will prove a new enus altogether. Some idea of its great beauty may be imagined when we state that the specimen about two feet high and thirty inches in diameter, densely grown, and having upwards of one undred and eighty bunches of bloom, each head expanding four or five flowers of the most intense nd dazzling bright blue, relieved by a white throat ; the flower is about three parts of an inch cross. The number of buds each head holds averages from ten to thirty, so as to keep up a long uccession of bloom. The habit is that of a half woody plant, very handsome and compact in its rowth ; and will be the most useful plant for bedding out or to grow as a specimen for exhibition a the greenhouse we ever met with. It was introduced from China, we understand.

OPERATIONS FOR NOVEMBER.

That part of a garden at this season of the year, which usually engrosses a great share of atten- ion, is the locality where new features, by alterations and improvements, are being introduced. t is very naturally the case ; and the degree of interest evoked is in proportion to the nature or nagnitude of what is in progress. Whatever is the character or extent of anything in the shape of new work, it will be a wise proceeding, wherever there is a possibility of its being done, to carry orward such business with all despatch. The recollection that newly-made roads, or walks ; fresh- aid turf ; removed earths ; recently planted trees, and so forth, are severally the better for having ll of the winter season allowable, to enable each to become settled, or established, coupled with the uncertainity of our climate, ought to be the only stimulants required to assist in ensuring these matters a first consideration. Such affairs seldom engage attention to the extent their importance entitles them to receive. There are grounds on the score of economy, as well as more important reasons, to justify the bringing of proceedings of the nature of those in question thus briefly under review.

In many places and in more than a solitary instance in each we frequently meet with, through summer and autumn, brown glades and patches of lawn ; ugly fissures in newly-made ground, and dead or dying trees and shrubs, forcing themselves, by their unsightly appearance, into notice ; and these evils often exist where neither labour nor expense, at a particular season, may have been spared to prevent them doing so. Sometimes, we too well know, unavoidable causes produce the state of things above mentioned, but it is to be feared, it is an exception rather than the rule where their agency is justly chargeable with blame. New work, hurriedly and imperfectly done, as a natural consequence of, and in conjunction with, its being performed late in spring, is a sure prelude in a greater or less degree, to such contingencies as those to which attention has been drawn.

Those who have anything in the way of planting to do, from forest trees and ornamental things down to simple biennial and annual plants, ought not to lose any opportunity of prosecuting that branch of their labours. Now is an excellent time to stock the reserve ground or nursery department. And we would observe, that it is matter of regret culturists do not more generally provide themselves with an appendage of the kind mentioned. It is a great thing to have a little store of specimen ornamental trees and shrubs to fall back upon at any time ; but more pleasure is derived from doing justice to the class of things to which allusion is made, by enabling them fully to develope their true characters and beauties ; and from growing and managing them in one's own way.

Other occupations in the open air this month, are partially or otherwise pruning a variety of things, finally or in part, as they may require, securing and supporting them at the same time ; protecting plants, &c., against winter ; breaking up vacant flower beds and ground which is not going to be occupied through that season ; collecting soils and composts ; and preserving every place as orderly and clean as circumstances will allow.

Plant-houses, of all grades, should be rendered as attractive as ever their capabilities will permit. In the conservatory principally devoted to a display of flowers, any plants, whether climbers, twiners, or others, that have done blossoming, may, according to their nature, be pruned, or otherwise made to occupy little space, that their neighbours in bloom may be better accommodated. The same may be said of all plant erections where flowers are an object. The latter ought to be maintained sufficiently dry to prolong their continuance in perfection. Growing plants must not, by any means, be slighted ; but placed where they will find conditions suitable to their state. Orchids, or any plants which make their developments at this time of year, are included in the last direction. An over-abundance of moisture, in any shape, must be particularly guarded against in the case of *Orchidaceæ* ; and that tribe, in common with all plants, should have abundance of fresh air admitted to them whenever circumstances will permit.

Expose, by turning regularly, all sides of specimen plants, that are not fixtures, to an equal degree of light. In many collections there are specimens which, in consequence of their being one-sided and ugly, will not bear thus exposing. Such it will be better to indulge by allowing them to grow in the shape they have hitherto done, until young ones of a more modern conformation can be raised to take their places. Allow every specimen and other plant as much space as possible, not only for the sake of their welfare, but also on account of their appearance.

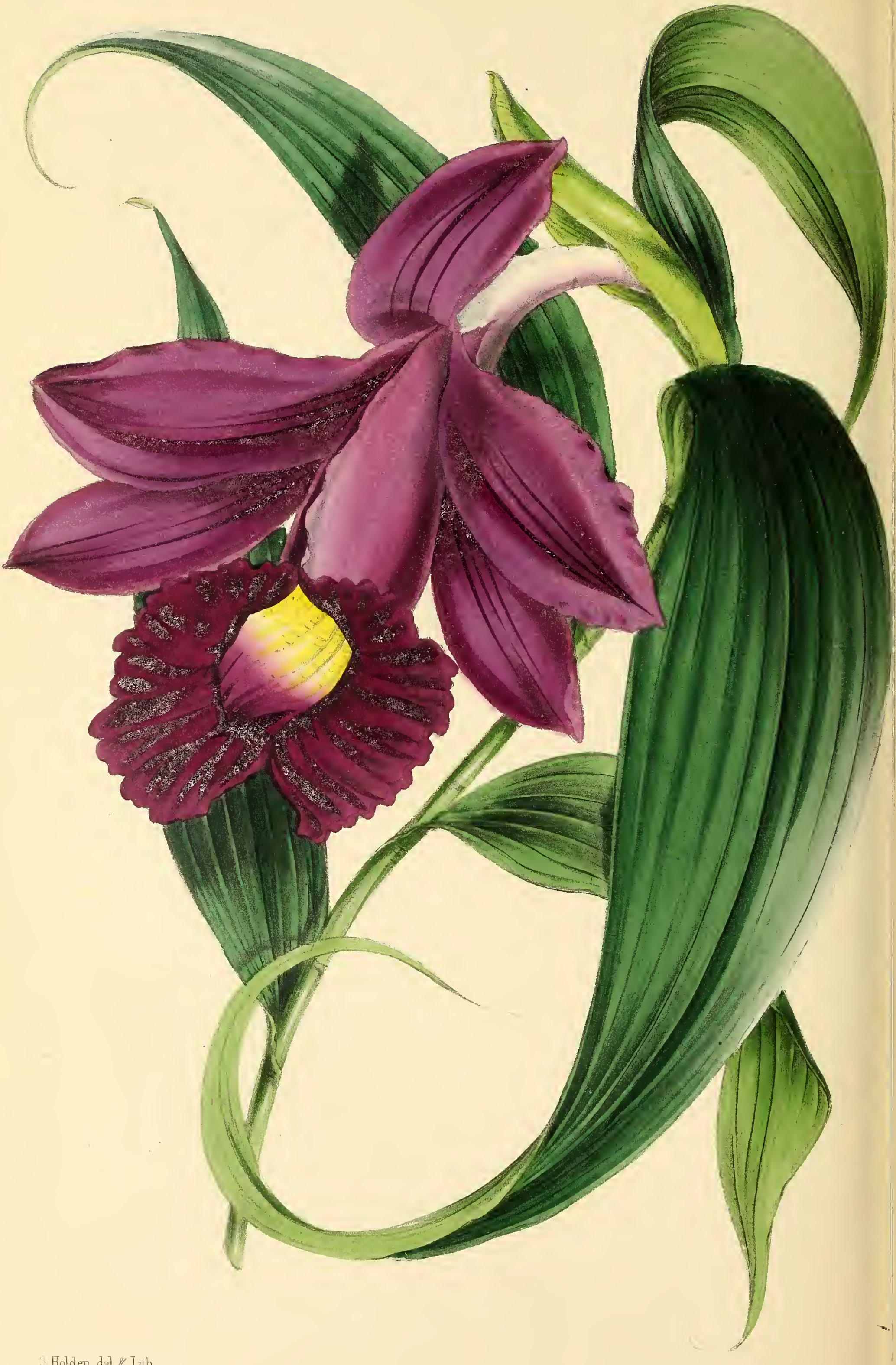
In order to hinder the flower-garden stock of plants from making improper growth, fully expose to the open air whenever it can be done without the prospect of their being injured by the process, and give each as much room as can be allowed, to aid in effecting the same object. Plunge those preserving in cold pits, in coal-ashes, sawdust, or some such material.

Add *Indigofera decora*, that is if you are not already fortunate enough to possess it, to your collection of plants which are esteemed for flowering this time of year ; and continue to furnish suitable things, in proper proportion, to the several forcing departments, for the purpose of keeping up the display of flowers.

Florist flowers, as Auriculas, Pinks, Pansies, and others, should, in case of need, be sheltered against excessive wet and cold, and be allowed to remain in undisturbed repose.

Flues and all heating apparatus ought to be got and held in readiness to put in action whenever their services may be required.

In wet weather or leisure days, plants may be named, seeds dressed or properly packed away, plant-trellises made, and a variety of occupations of that class may furnish employment.



S. Holden. del & Lith.

Sobralia macrantha splendens.

SOBRALIA MACRANTHA SPLENDENS.

(Splendid Large-flowered Sobralia.)

Class.
GYNANDRIA.

Order.
MONANDRIA.

Natural Order.
ORCHIDÀCEÆ.

ENERIC CHARACTER.—*Perianth* large, coloured, r ly equal. *Sepals* spreading, sometimes reflexed. l *ls* erect. *Lip* hollow, clasping the column, narrow a ie base, margins plaited, at the top somewhat two- l d. *Column* elongate, marginate, club-shaped, s rated at the top into three lobes, middle lobe hood- l , and bearing the anthers. *Stigma* marginate, h ing two nectariferous glands at the base. *Anthers* t inal, stipitate, partly four-celled. *Pollen-masses* f , compressed, pulverulent.

SPECIFIC CHARACTER.—*Plant* a perennial. *Stems* reed-like, growing six feet or more high. *Leaves* ovate, acuminate, rigid, plaited. *Flowers* terminal, large, and showy, betwixt seven and eight inches in diameter, rich crimson. *Sepals* spreading, lanceolate, acuminate. *Petals* oblong. *Labellum* emarginate, flat, smooth.

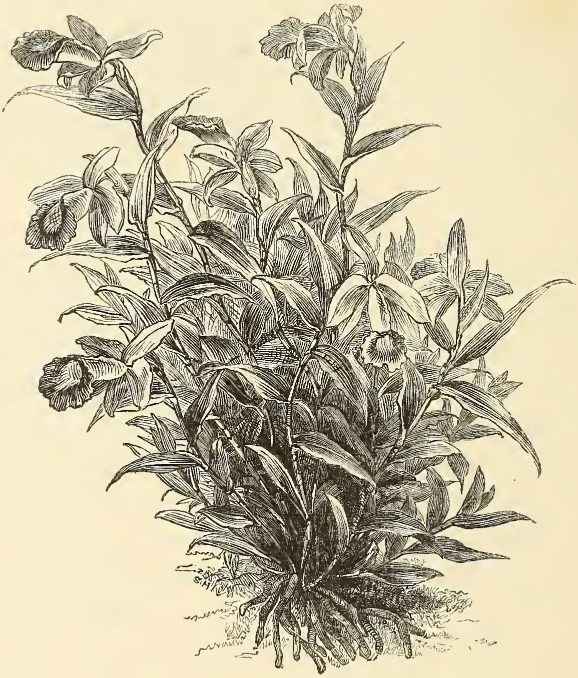
Variety Splendens.—Plant growing only two to three feet high, *flowers* large, deep, rich, crimson-purple; in other respects like the species.

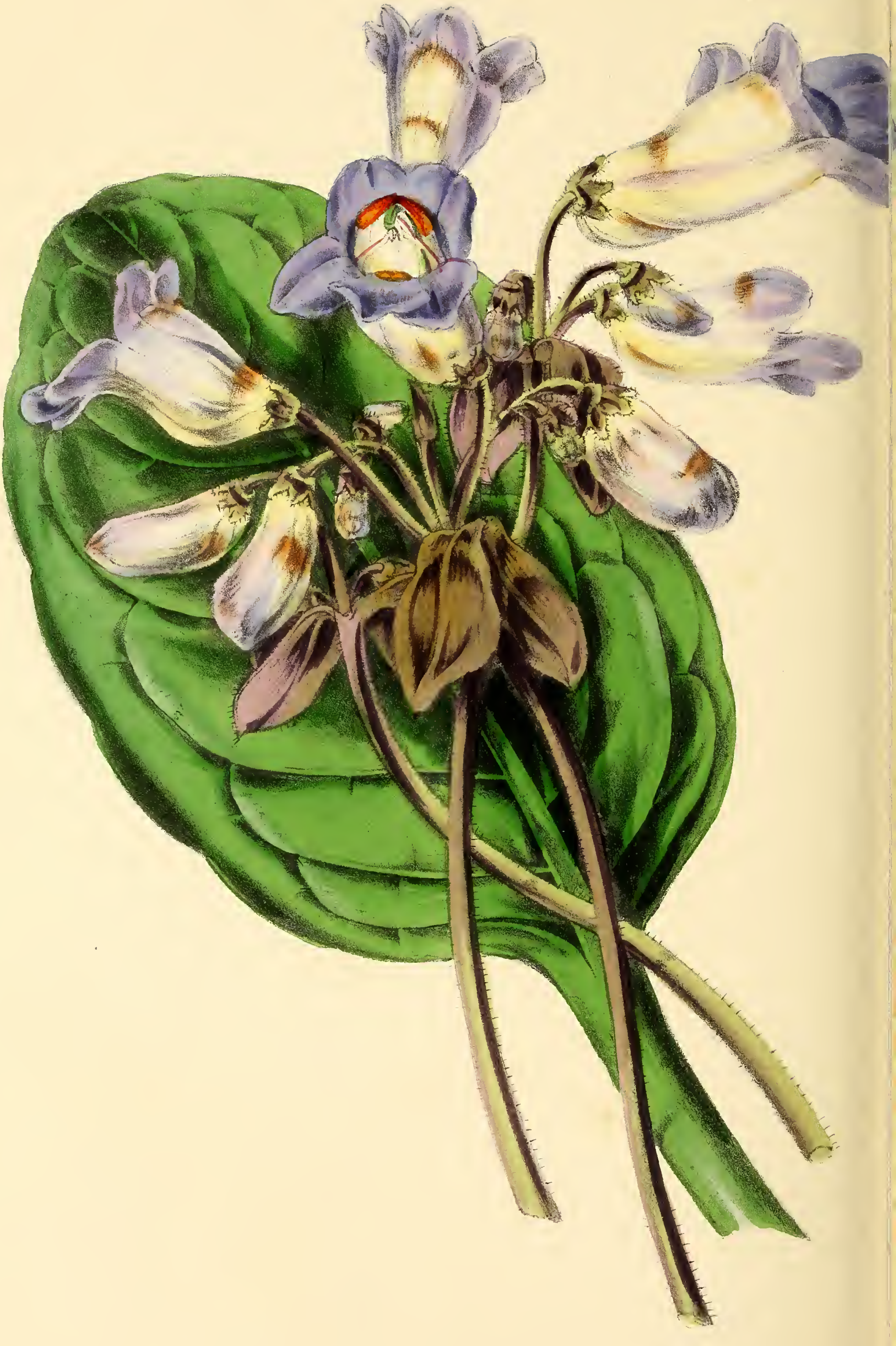
OF this fine genus Dr. Lindley remarks in the *Sertum Orchidaceum* that " the g ius Sobralia is one of the most remarkable among Orchidaceæ, with its lofty r dy stems, large lily-like flowers, and stiff plaited leaves, which resemble those of t smaller kinds of Palm-tree. It is found in Peru, in Brazil, and in Mexico, w ere the species are amongst the most stately inhabitants of the bush. They c sist of terrestrial perennial plants, with simple roots, and stems not uncommonly g wing three times as high as a man, very rarely branched, and thickly clothed with l ves. Their inflorescence consists of terminal racemes, which are straight or f uose, sometimes axillary and bifid, and loaded with snow-white, pink, crimson c violet flowers. The lip of all the species is wrapped round the column, whence it a pears as if funnel-shaped, and is bordered by a lacerated fringed edge. The s cies inhabit dry, sunny, rocky, and very hot places, where they often form exten- s e thickets. A few are sweet-scented; and of some the flowers last for only a s ort time."

For the opportunity of figuring the subject of our present plate we are indebted t Messrs. Rollisson's, of Tooting, in whose nursery this magnificent species flowered i July last. These gentlemen came into possession of it about two years ago, h ing purchased it amongst other plants at one of the sales of South-American (hids collected by Mr. Skinner. We believe it is a native of Mexico.

The culture of this plant, although peculiar, is not difficult. It requires the temperature of a damp and well shaded stove. The heat, however, to which it exposed should not be too great, or the plant will at once show signs of sufferin The soil proper is a mixture of turfy peat two parts, and turfy loam one part; the must be roughly broken together. Give plenty of pot room, as the roots will n bear to be cramped. Set the pot containing the plant in a pan of water, whi should always be kept full during the season of growth, but at the time of the plan repose the pan of water must be dispensed with. The subjoined wood-cut exhibi the habit of the plant.

The name is given in honour of Don Francisco Martin Sobral, a Spanis botanist.





S. Holden, del & Lith

Chirita sinensis.

CHÍRITA SINENSIS.

(Chinese Chirita.)

Class. **DIDYNAMIA.**

Order. **ANGIOSPERMIA.**

Natural Order.
GESNERÀCEÆ. (*Veg. King.*)

Generic Character.—*Calyx* tubulous, pentagonous, alvate. *Corolla* monopetalous, tubular, campanulate, entricose beneath; limb bilabiate, five-lobed, lobes ounded. *Stamens* five, two fertile, and three smaller nes abortive. *Anthers* cohering, kidney-shaped, naked, ne-celled. *Ovary* a silique. *Style* one. *Stigma* bi-artite, lobes oblong and spreading. *Capsule* two-elled.

Specific Character.—*Plant* a stove perennial. *Leaves* springing directly from the root. *Petioles* short, ut very thick and triquetrous, expanding into an lliptical, ovate blade, the outer ones the longest, all airy, crenate, obtuse, wrinkled, pale, and with very rominent veins beneath. *Scape* a span and more high, t first curved downwards, then erect, stout, terete, lothed with copious, patent, red hairs, and terminating in a subtrichotomous, compound *corymb*, having at the base two large, deciduous, membranaceous *bracteas*. *Peduncle* and *pedicels* with coarse spreading hairs. *Calyx* small, with five ovate segments. *Corolla* large, lilac purple, yet varied with red and white; the tube inflated, but with a sudden compression towards the base beneath, forming a carina; *faux* open; *limb* two-lipped, upper *lip* of two, lower of three rounded lobes; within the corolla, on the lower side, are two linear, orange-coloured callosities; above, at the faux, a broad two-lobed one, of the same colour. *Stamens* two fertile with the *anthers* two-lobed, firmly united to each other, two sterile *filaments*, and one rudimentary *filament*. *Ovary* linear, glanduloso-pilose. *Style* short. *Stigma* one-lipped, bifid."—*Hooker.*

For the opportunity of figuring this beautiful little plant we are indebted to the ine collection at Readleaf, where we made our drawing in September last. It is tated by Dr. Lindley in the "Botanical Register," vol. iii., t. 4284, to be "one of he first results of any importance, from the voyage to China, by Mr. Fortune, on ccount of the Horticultural Society. It was sent home in a wooden case, and its eautiful large lilac fox-glove-like flowers were open when it arrived." This was in 1844; since that time other species, vying with it in beauty, have also been introduced into our collections; two of them have already been figured and described; *C. zeylanica*, in "Mag. Bot." v. xiii., t. 265, and "Bot. Mag." 4182, and *C. Walkeri*, in "Bot. Mag." 4327. They are both plants with rare attractions.

The habit of our present subject is intermediate betwixt *Streptocarpus Rexii*, and *Gloxinia speciosa*. Its season of flowering is very prolonged, under favourable circumstances continuing for many months together; and by the judicious management of several specimens of this plant placed in different temperatures, the season of bloom might be extended almost throughout the year.

In respect to cultivation, it will grow and flower freely in a warm greenhouse; but to have it in anything like perfection, a moist, but moderate stove-heat is necessary. It should there be placed as near to the glass as possible, and be well shaded from the rays of the sun, which otherwise are sure to scorch the leaves, an injure the growth. In such a situation, with a good supply of water to the roots during the whole of the season of growth and flowering, numbers of robust flowe stems will arise, and unfold themselves in succession during the whole of the summer

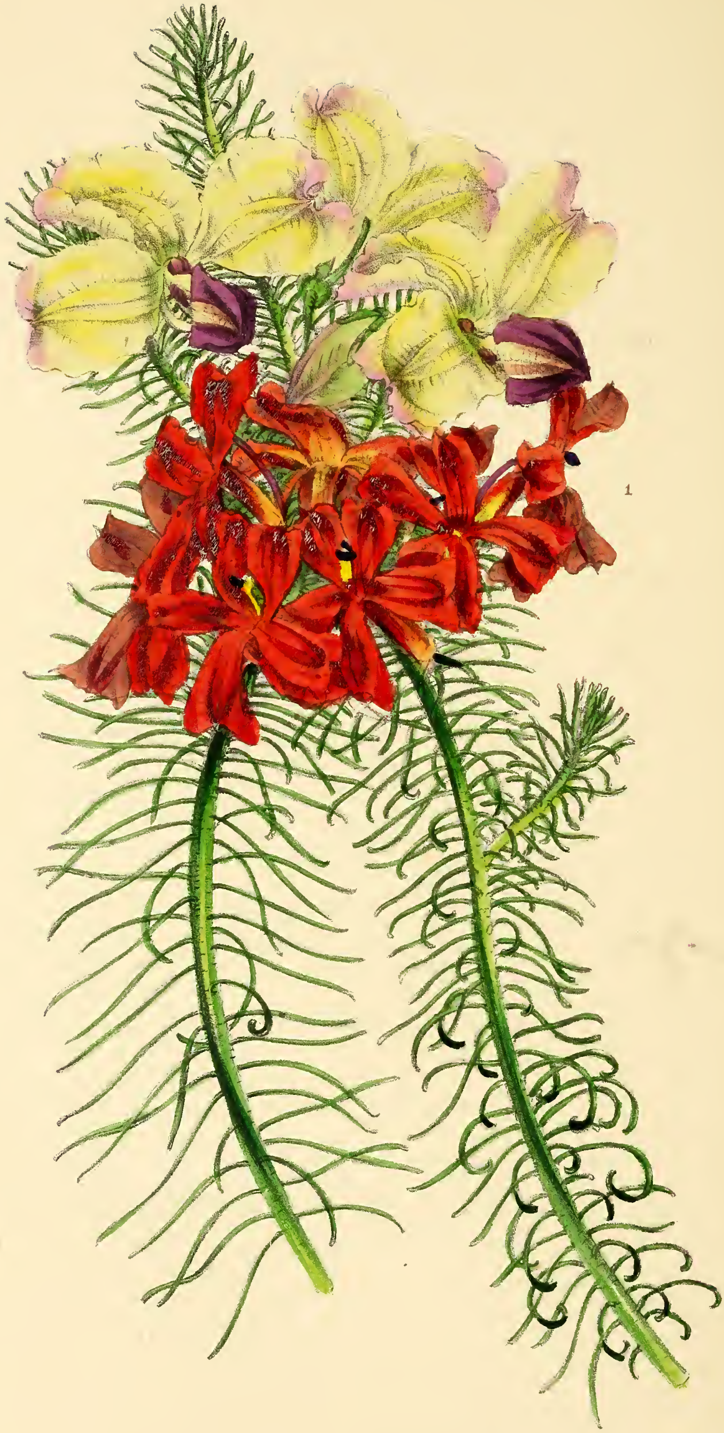
It might be well to mention here by way of caution in watering, that althoug this plant delights in a very humid atmosphere, it is impatient of having wate poured over its leaves. If subjected to the usual process of syringing, it neithe flowers so fine, nor do the leaves exhibit that rich healthy green, which is so desirable; and not unfrequently some of the larger ones prematurely perish.

When the growth and flowering are over, diminish the supply of water considerably; and throughout the winter give no more than is requisite to keep the soil in the pots from becoming dry and parched. The plants should also stand in a cool dry part of the stove, or be removed to the greenhouse until the return of spring.

The soil proper for it to be potted in, is a mixture of sandy peat, light loam, leaf mould, and sand, in equal proportions. The proper time for potting is in the commencement of the spring, when the plants show signs of growth after their winter's repose. Give a liberal watering previous to disturbing them, after which turn them out of the old pots, and without damaging the semi-torpid roots, remove a good portion of the old soil; place a handful of crocks as drainage in the bottom of each pot in which the plant is intended to flower, spread out the roots over the new soil, and when finished, give a supply of water with a rose, replace in the stove, and when the leaves begin to unfold themselves, treat as recommended above for the season of growth.

Propagation is effected by leaves cut off, laid on a pot of fine sand, and placed in a moist hot bed or other heat.

The generic name is derived from the vernacular appellation of one of the species.



S. Holden, del & Lith

1. *Leschenaultia splendens.*
2. *L. arcuata.*

LESCHENÀULTIA SPLÉNDENS.

(Splendid Leschenaultia.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
GOODENIÀCEÆ.

Generic Character.—*Calyx* superior. *Tube* of the rolla cleft on one side; limb bilabiate. *Anthers* co-ring at the time the flowers are expanded. *Grains* *Pollen* compound. *Stigma* obsolete, in the bottom the bilabiate indusium. *Capsule* prismatic, two-lled, four-valved, opposite valves septiferous in the iddle. *Seeds* cubic or cylindrical, nucumentaceous. *ag. Bot.*, vol. viii., t. 151.

Specific Character.—*Plant* an evergreen shrub, owing two feet high. *Stems* erect, smooth, and copiously branching. *Leaves* irregularly disposed, patent, reflexed, filiform, apiculate. *Flowers* produced in corymbs at the extremities of the branches, very showy. *Calyx* linear-awlshaped, nearly as long as the tube of the corolla, bractless. *Corolla* five-parted, segments cuneate, nearly equal, as long as the tube, of a brilliant scarlet; tube paler. *Stamens* five, smooth. *Style* smooth; stigma two-lobed, with a bunch of glandular hairs near the termination.

When in "Mag. Bot.," vol. viii., t. 151, we figured *L. biloba*, we could not void expressing our admiration of this lovely genus of plants; their slender graceful abit, erica-like leaves, and the profusion of rich coloured flowers, which with very ttle trouble they are made to produce, were pointed out as qualities which rendered iem deserving of all the praise which could be bestowed.

However high were the encomiums which, in vol. viii., we passed upon the blue pecies (*L. biloba*), we have now one perhaps fully equal, if not more than its match, ı *L. splendens*, the subject of our present plate. When the plant is in full bloom, and terally covered with brilliant scarlet flowers, it is not easy to find an equal which ould occupy as a shrub only a similar space, and of so humble a growth; indeed, s dazzling effect upon the sight can only be equalled by some of the brilliant oloured verbenas.

It is a native of Australia, and was introduced from thence by Messrs. Lucombe, ince, and Co., of Exeter, through Mr. Drummond, who discovered it growing with everal other species and varieties in the neighbourhood of Swan River, and who ent seeds of it to the above-named gentleman.

It is a greenhouse plant requiring the same treatment as recommended for . *biloba*, and is propagated by cuttings.

The specimen from which our drawing was made was grown by Mr. Ayres in the fine collection of J. Cook, Esq., Brooklands, Blackheath, where it flowered in profusion during the whole of the autumn. In August our drawing was made.

The name was given in honour of M. Leschenault, a French traveller, and botanist.

LESCHENÀULTIA ARCUÀTA.

(Drooping Leschenaultia.)

Generic Character.—See above.

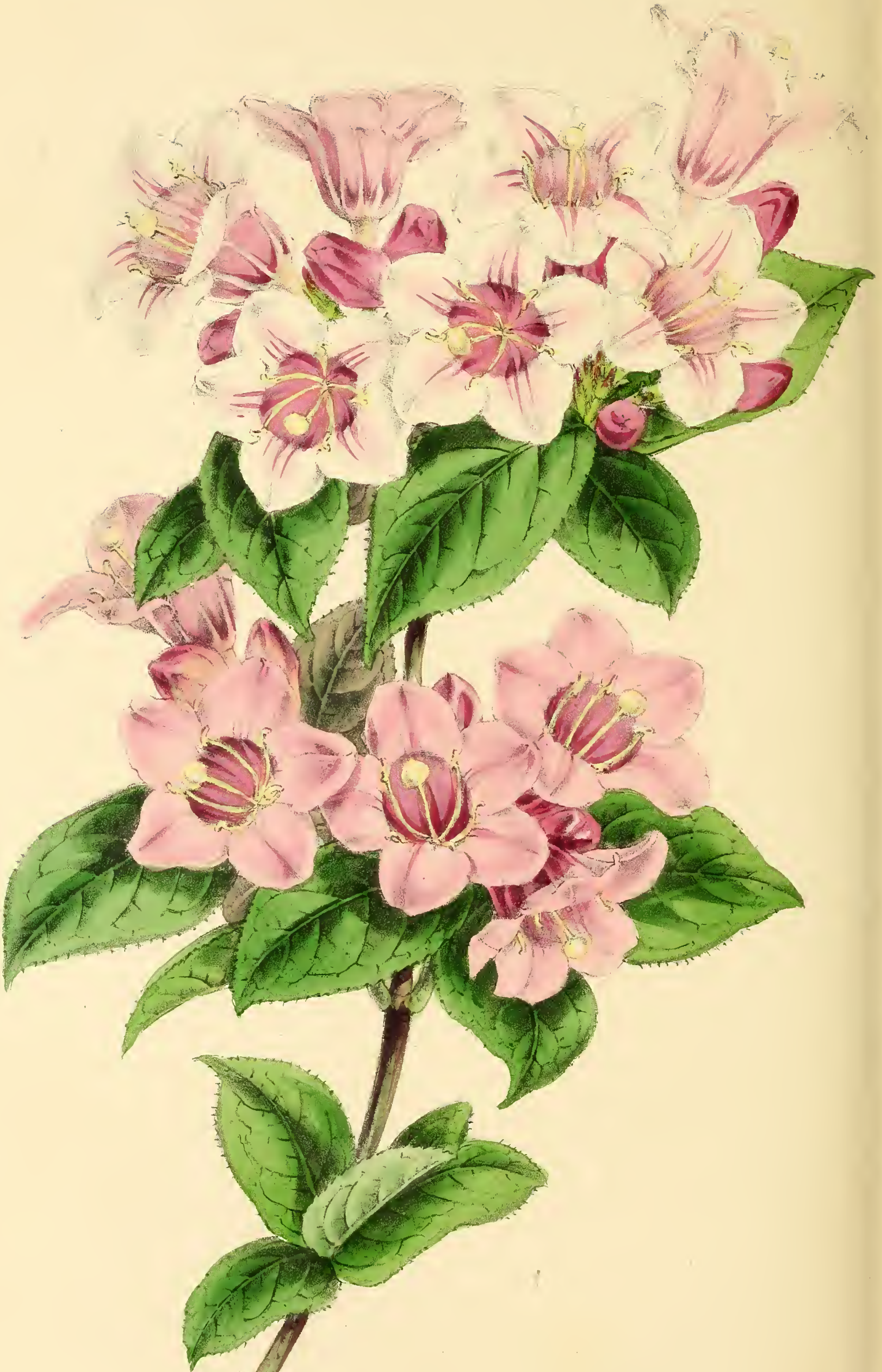
Specific Character.—*Plant* an evergreen shrub, growing a foot-and-a-half high. *Branches* numerous, spreading, disposed to be prostrate, small branchlets growing more upright. *Leaves* irregularly disposed, patent, reflexed, filiform, acute. *Flowers* large, solitary, terminal. *Calyx* in five segments, each oblong, acute, somewhat concave, as long as the tube of the corolla, bractless. *Corolla* tubular; tube short, and slightly ventricose on the under side; limb bilabiate; lower lip cut into three large, spreading, bifid, obcordate segments, of a bright yellow colour; upper lip in two smaller, obovate, upright segments, which close together and conceal the stamens and style; these are red, tinged with purple. *Stamens* five, smooth. *Style* long, slender. *Stigma* two-lobed.

Although in point of splendour this plant will bear no comparison with *L. splendens*, yet it is a really handsome object when in full and vigorous growth, forming a spreading bush from three to four feet in diameter, and variegated all over with its curiously coloured flowers.

It was raised from Swan River seeds collected by Mr. Drummond, and sent to Messrs. Lucombe, Pince, and Co., of Exeter, in whose extensive nursery it has flourished, and been spread through the trade; and also into many private collections in the country.

For the opportunity of making our drawing we are indebted to Mr. Low, of Clapton, in whose nursery it flowered profusely last August.

It is a greenhouse plant, requiring the same treatment as the other species.



S. Holden, del & lith.

Weigela rosea.

WEIGÈLA RÒSEA.

(Rose-coloured Weigela.)

Class.

PENTANDRIA.

Order.

MONOGYNIA.

Natural Order.

CAPRIFOLIÀCEÆ.

Generic Character.—*Calyx* tubular, tube oblong, imb five-cleft. *Corolla* funnel-shaped, five-cleft, egular, equal-sided at the base, lobes spreading. *Stamens* five, sometimes exserted. *Ovary* one-celled. *Stigma* doubly capitate. *Style* with a reniform hairy gland, fixed immediately at its base; gland not adherent to the corolla.

Specific Character.—*Plant* a deciduous shrub. *Stems* erect, hairy, bearing a profusion of opposite hairy branches. *Leaves* opposite, elliptical, acuminate, serrated above, nearly smooth below, on very short *petioles*. *Peduncles* axillary and terminal, the latter bibracteate, and usually dichotomous. *Flowers* large, rose-coloured, disposed in pairs. *Calyx* bilabiate, and cut into five lanceolate, acuminate, unequal segments. *Corolla* monopetalous, tubular, five-parted, segments equal, smooth, ovate, patent, somewhat reflexed, tube slightly ventricose. *Stamens* five, smooth above, hairy below. *Style* longer than the stamens; *stigma* doubly capitate.

Perhaps, taking it altogether, a more beautiful hardy shrub than the one now figured has not been brought into this country for many years. It is one of the recent introductions of the London Horticultural Society, in whose garden at Turnham Green it flowered beautifully last April, when our drawing was kindly permitted to be made.

It is a native of China, where it was first discovered by Mr. Fortune, "growing in a Mandarin's garden on the Island of Chusan, and was then literally loaded with its fine rose-coloured flowers, which hung in graceful bunches from the axils of the leaves, and the ends of the branches."

It is stated by Mr. Fortune to be "unknown in the southern provinces of China, and is not met with on the Chinese hills in a wild state, it is therefore just possible that it may have been originally introduced to China from Japan; this, however, is only conjecture. In the parts where it is found, the thermometer sometimes sinks within a few degrees of zero, and the country is frequently covered with snow; and yet in these circumstances it sustains no injury. It forms a neat, middle-sized bush, not unlike a Philadelphus in habit, deciduous in winter, and flowers in the months of April and May. One great recommendation to it is, that it is a plant of the easiest cultivation. Cuttings strike root readily any time during the spring or summer months, with ordinary attention; and the plant itself thrives well in any common garden soil. It should be grown in this country as it is in China, not tied up in that formal unnatural way in which we frequently see plants which are brought to our exhibitions, but a main stem or two chosen for leaders, which in their turn throw out branches from their sides, and then when the plant comes into bloom, the branches, which are loaded with beautiful flowers, hang down in graceful and natural festoons."

Such is the account given of the introduction and subsequent treatment of this beautiful shrub in the "Journal of the Horticultural Society." As the plants which have already been distributed through our collections are too small at present to risk in the open borders, and are therefore chiefly cultivated in pots, some years must necessarily elapse before the true value, as a shrubbery plant, of this introduction can be fully estimated. Little doubt, however, need be entertained that if the plants are placed in situations where they will not be exposed to boisterous and very cutting winds, if the subsoil be perfectly dry, or rendered so by drainage, and the rays of the sun have free access to ripen the wood properly, they will endure our most severe winter without protection.

The genus *Weigela*, which originated with the Swedish traveller Thunberg, has been referred by modern botanists to *Diervilla*, and several species of it inhabiting Japan have been published by Messrs. Siebold and Zuccarini under that name. But although in many technical characters it approaches that genus, yet it is very different in habit. Both are remarkable among Caprifoils for their one-celled ovary, cut into four false cells by the projection of a pair of double placentæ, which do not unite in their axis, and both have a double capitate stigma, and a remarkable epigynous gland. But while in *Weigela* that gland is free, in *Diervilla* it adheres to the corolla; and in *Diervilla* the corolla is irregular and gibbous on one side at the base, while in *Weigela* it is regular and equal sided at the base.*

The greater part of Caprifoliaceous plants are favourites in our gardens; they consist of fifteen genera, all shrubby, with the exception of *Karpaton hastatum*, two species of *Triosteum*, and three of *Sambucus*. The greater part are hardy; a few require the shelter of a wall or other slight protection; some need the temperature of a greenhouse, and two or three are stove plants.

The genus Abelia consists of small weak-growing but pretty shrubs, bearing long tubular flowers, like those of the Honeysuckle (Caprifolium). Five or more species are known, and three—*floribunda*, *rupestris*, and *triflora*—are already introduced into Britain. The first-mentioned is by far the handsomest at present known. See pages 188 and 238. *A. rupestris* and *triflora* are both very fragrant; the first forms a small spreading bush, with deciduous, bright-green foliage; the flowers are pure white, and come in pairs from the axils of the leaves belonging to the short lateral branches. It remains in flower a long time. *A. triflora* assumes more the form of a tree, its flowers are produced by threes, and form corymbs at the minations of the branches; their colour is a pale rose. As it respects the culti-ion of this desirable genus, *A. floribunda* "requires a treatment intermediate ween the stove and greenhouse; that is to say, during the growing season it quires to be treated like a stove plant and kept rather moist, but afterwards, when flowers are over, it should be transferred to the greenhouse. It grows freely in mixture of sandy loam, peat, and leaf-mould, and strikes freely from cuttings."* *rupestris* "has hitherto been treated as a greenhouse plant, but will probably ove hardy enough to stand out of doors in mild winters. The soil which appears ost suitable is rough sandy loam, mixed with a little peat. Being of free growth, ample supply of water is necessary during the summer season. In winter nothing ferent from the general treatment of greenhouse plants is required. It is propagated m cuttings of young wood, in the usual way."† *A. triflora* will endure about same amount of cold as *Rhododendron arboreum*, and should therefore be kept in a l airy greenhouse, and be potted in a mixture of equal parts of peat, loam, and sand.

---

* Dr. Lindley in *Journ. Hort. Soc.*, i., 66 and 190.

Alsenosmia.—With this genus we are too imperfectly acquainted to offer any narks on culture.

Caprifolium.—With the exception of three Chinese species, *confusum*, *japonicum*, d *longiflorum*, all are perfectly hardy, and these three exceptions require no more an the shelter of a common wall. It is true *L. javanicum* and *L. Loureiri* are eenhouse plants, but it is not quite certain whether they are yet introduced. All e species are ornamental climbers of very easy management, being well suited her for covering trellis work, arbours, or training against walls. They will thrive any common light soil, and are increased by cuttings of the ripe wood taken off at e close of the summer, and planted in a warm situation on a south border; the nder kinds should have the shelter of a hand-glass.

Diervilla.—Five species of *Diervilla* are introduced, four of which, being tives of Japan, can be scarcely said to be perfectly hardy; although they will bear mild winter tolerably well, yet without some slight protection they suffer from vere frosts. *D. canadensis* is a well-known deciduous shrub, growing freely in mmon garden soil, even in the most exposed situations. The other species also ow well in any light sandy soil, and are readily increased by cuttings, those of the *canadensis* put into the open ground in autumn and spring, after the manner of ose of Laurels. The cuttings of the other species should be covered with a hand-ass. Suckers are also produced in abundance, by which they are likewise produced entifully.

Karpaton hastatum.—The only known species is stated to be a hardy herbaceous ant, from Louisiana, growing in a border of sandy peat earth, and propagated by vision of the roots.

---

* *Bot. Reg.*, t. 55.

† *Hort. Jour.*, i. 63.

Leycesteria formosa.—This is a beautiful shrub, flowering during the whole of the summer months. It grows with great freedom in any rich light soil, but should always be planted in a warm and sheltered situation; for if much exposed to cutting winds, its tender foliage is sure to be destroyed, and the plant will always look ragged, and never assume its natural habit of luxuriance. It is a splendid shrub for the front of a shrubbery. It is easily increased by cuttings planted in autumn or spring, or by seeds, which ripen in abundance.

Linnæa borealis.—The only species is a well-known trailing evergreen bog plant. This elegant little shrub never thrives except when planted in peat earth. It forms a very graceful pot plant, if grown in a shady situation; but if exposed to the sun, it is impossible to make it grow well, whatever care and pains may be taken; to have it in perfection it should be planted out in a shady border of peat earth, where the sun can never shine upon it, and where it will be perfectly free from the drip of trees; in such a situation it will luxuriate and spread over a great surface, producing abundance of pretty flesh-coloured and somewhat fragrant flowers at the extremity of every branchlet; the trailing branches will also strike root at almost every joint that touches the ground, by which means the plant is easily increased.

Lonicera, Sambucus, and Symphoricarpus.—All the species of these three genera are, (with the exception of three kinds of Sambucus) hardy shrubs of the very easiest culture. They grow in any common garden soil, and are increased readily by either suckers, cuttings of the ripened wood planted in the ground either in autumn or spring, or seeds, which are produced in abundance.

Triosteum.—Two species have been inhabitants of our gardens for more than a century; being both natives of North America, they are perfectly hardy, and will grow in any light garden soil, although they prefer a border of peat earth where they are partially shaded from the sun. Propagation is effected by division of the roots.

Tripetelus and Valentiana.—Two genera, with the habits of which we are little acquainted.

Viburnum.—A large genus of shrubs, the greater part of which are deciduous, a few are evergreen, all are ornamental, and well suited for shrubberies. *V. tinoides* and *V. villosum* are stove plants, and *V. odoratissimum*, *rugosum*, and *tomentosum* require the shelter of the greenhouse. These should be potted in a mixture of peat and loam, and are propagated by layers and cuttings.

All the other introduced species are perfectly hardy, will grow in any light soil, and are increased both by suckers, layers, and cuttings planted in the open ground.

WINTER REPOSE OF PLANTS.—DECEMBER.

By the time this article shall be in print, the horticultural winter will be fairly stablished, and it is therefore needful to resume those remarks on the treatment of lants which were alluded to in the article of November. But previously it will be seful to view, retrospectively, the "Characteristics of the Seasons," which, in Jo. clxiv., and at page 177, were brought up to the end of July.

Every locality has its own peculiar weather; but in that where the writer resides, *lugust* became so thoroughly dry, that the grass lost its verdure, leaves fell from eep-rooted elms, till they strewed the roads, and all vegetables became weak and laccid. A few opportune showers supported life, and that was nearly all. As a iarvest month it was faultless, and in temperature was mild and very equable, the iverage of day and night being somewhere about 64°. *September* had in it eleven lays more or less rainy; these rains were very useful, but they merely penetrated he surface. The temperature was much reduced. This want of rain-water produced much inconvenience in all the floral departments, as of all appliances it is the nost natural and clean, and, where received by internal tanks supplied from the glazed roofs of the houses, is apt to become rather offensive during the long absence of showers. Amateurs suffer more than other persons under this privation, the quantity they are able to collect being trifling; but in a large establishment—as, for instance, that of Messrs. Rollisson—it abounds: there the utmost sweetness and perfect cleanness of leaf prevailed in every house we passed through. The sight was beautiful—it spake of attention, ample means, and resources.

October was gloomy at its commencement, with wind at north-east. The character changed with the wind, on the 8th day, to south-west, just one day before the great anticipated solar eclipse, which rain clouds entirely concealed in the south of England. Subsequently there were warm and sunny days, but several others, at intervals, in which showers fell abundantly. The month ended well—temperature 52° to 55°, finely-shaded clouds, and gentle air. As a whole, it has supported its character, and every vegetable and plant has prospered accordingly.

November opened in a style altogether striking, with all the brilliancy of spring; the sun shone with power, the blue tint of the sky equal to any that is seen in April, and the air altogether was bland and soft; minimum temperature of the night 52°. The second day was equally warm, and brilliantly sunny, air soft, from south by west, mid-day temperature stood at 60°, and in the sun 78°.

Here we can proceed no farther with the calendar, as time for the press must be given; and as it is not at all desirable to trespass on the charge of others who write monthly in this Magazine upon the treatment of Plants in erections of every description, we hasten then at once to a subject of painful interest, which also will embrace those theoretic principles that apply directly to the philosophy of artificial cultivation.

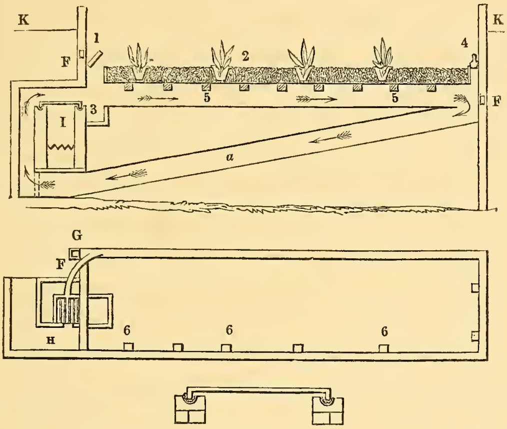
To do justice to this subject, and his own personal feelings, the writer lays asid for the moment the editorial form, and assumes that of the first person, since h is called upon to justify the practice and memory of a good man.

Mr. Meek, of Nutfield, in Surrey, is no more. His decease was particularl noticed in the "Gardeners' Chronicle" of October 24th. I knew Mr. Meek pe sonally, though slightly; but being near his residence just as the fine weather c last May came in, I visited him, and was at once admitted to his full confidenc Prejudiced up to the very moment against the system, as it had been previousl detailed, almost to nausea, I discovered, ere five minutes had elapsed, while seate in his elegant drawing-room, that it became my chief duty to listen to the flow c eloquence that proceeded from the lips of a scholar and a gentleman, zealous t enthusiasm, and assuredly convinced of the truthfulness of the theory which hi mathematical principles had enabled him to develope. It was not until he ha laid open his views upon *radiation*, and sketched upon paper the form and directio of the passing rays, thus rendering it clear, almost to positive demonstration, tha *air itself was its own best medium of temperature*, altogether independent of *an visible heated surfaces*, that he attempted to introduce me to his erections.

We at first entered his stove, fully described by Mr. Meek in his article "Observations upon the Polmaise Method of Heating Garden Buildings," Journal of th Horticultural Society, vol. ii. pp. 49 to 71. This hothouse, 28 feet by 17, wa covered with a span roof facing north and south, not steep. The furnace was erecte at the east end, where the wall was carried up to the span; on the two sides and western end upright sashes met the glazed roof. The three outer walls which supported these sashes were left with twelve openings to act as ventilators for fresh air from without, the number of which to be left open or closed, being governed by existing circumstances. The pit for hot air, comprising also the flues or drains for the passage of the *low* situated cold air of the entire hothouse, was above 22 feet in length by 9 feet in breadth.

I saw this house and its furniture in May; the day was warm and sunny, but there had been fire over night, and therefore its effects could be correctly appreciated. The plants plunged were, I believe, chiefly the Jamaica Pine; they had not been long potted or introduced, and were in a full growing state. Finer or more healthy foliage could not be expected; the collection upon the shelves was miscellaneous, including some *orchids*. Nothing could be more promising; health appeared in every part and member: nor was this surprising when we consider the soft genial state of internal atmosphere, capable of perfect regulation by the action of warm air through the pit, or of cool air from without.

After an attentive survey of the hothouse, its warm air and plunging pit, the furnace, and all visible appliances, I left it, and we proceeded to view the *model* and projected improvements of the greenhouse. These would be important, and perhaps were carried into effect ere the decease of Mr. Meek: that event, however, precluded the possibility of a contemplated visit about the beginning of winter. To those who eel interest in the few adduced facts, I beg earnestly to recommend a careful study f the original article in the "Journal of the Horticultural Society." In the meanme, there was given in the "Gardeners' Chronicle" of Saturday, October 30th, . 717—middle column—a plan of what is called *a Polmaise* pine pit by a ardener to the Duke of Leeds. The plan is but loosely described in words, but he wood-cut may convey a fair idea of the structure of Mr. Meek's inner or air-pit:



Reference to the Engraving.—1, Lid over tank; 2, lunging material (old tan); 3, Brick tank, lined with ement, 3 feet by 1 foot 6 inches, and 9 inches deep; 4, entilator, closed; 5, Wood beams, 4 inches square, overed with slabs, over which turves are laid; 6, Ven-ilators along front and end of pit, to be opened at plea-ure; *a*, cold-air drain; F, Flues; G, Chimney; H, Stoke-hole; I, Stove; K, Ground Level. The iron plate is set in a groove in the brickwork, filled with silver sand. The stove is built with fire-bricks, a brick in length. The iron plate is 1 inch thick, with a ledge an inch deep. The stove is built on a strong flag, supported on one side by two brick pillars; the other side is laid over the end of the cold-air drain.

he cold air drain is however dissimilar, yet may very well suit where it passes to nd through the *outer* wall.

Having now endeavoured to justify Mr. Meek's integrity of purpose, ability of design, and real success, I leave his memory to honour, and shall close these remarks by showing how they are intended to bear upon the leading subjects of this article.

It is of consequence that a gardener should possess entire command of vapour, of air, and of temperature in every chief plant house—the stove particularly. Perfect equability is also a prime requisite; by which we would express, not a sameness of degree either by day or night—for that would be to subvert the law of nature—but an equal distribution of heat at any one time throughout the atmosphere of any house. There is in Mr. Meek's article a table of "Temperatures in the iron-roofed stove," of the Society's gardens, which exhibits the variations of heat therein three times a day, during an entire week of February, 1846, and proves the wasteful expense of fuel and irregularity of action. Mr. Meek assured me, that during the hard winter of that year, he had purposely avoided any outer coverings of his span-roof, although the house was fully exposed, and every quarry left without puttied laps; nevertheless he had, by ordinary means and the use of very coarse fuel, maintained a temperature of fully 60° by night, varying scarcely two degrees throughout the house.

Now, we want *economy* of fuel, the *combustion* of breeze and such like stuff, a power to *command* 60° to 65° as a minimum, and a *moist* or *dry* atmosphere at will. We do not claim 60° as essential, but we say, be sure of the power to do so, and then suffer the temperature to recede to 50°—55° by night, if you please.

Possessing this requisite power, must not the construction of a house which can confer it be a very great acquisition? We do not argue for, or advocate "Polmaise," and as far as possible, repudiate the term; it has proved a bone of contention: and in Mr. Meek's stove there were no wet blanket, water-jets, or any peculiar appliances whatsoever. An air-flue, conveying (but invisibly) a constant stream of air, driven onward over a heated plate* by the impetus of a descending current of cold air from the body of the house, formed the active principle of the apparatus. Now, there is every reason to believe that the general theory is sound, and the machinery light in expense. We neither urge any one to adopt it at this season, nor to make any alterations of old structures. But should a new pit or something of the kind be required, it might be advisable to adopt the form, after mature reflection and consultation, since it is undeniable that the winter repose of those plants which indicate, by certain appearances, their tendency to lapse into it, can be safely maintained in the cool parts of such a house; while other plants which retain verdure and growth can be supported therein with facility.

A free *circulation* of air is vitality—mouldiness cannot subsist therein, and our proposed apparatus assuredly carries it on *throughout.*

CULTURAL HINTS ON SOME OF THE PLANTS BELONGING TO THE GENUS STATICE.

The Statice, or Sea-Lavender, is a very beautiful family of plants belonging to the natural order Plumbagineæ, and are low shrubs or herbaceous plants, with showy red, blue, white, or yellow flowers, of a dry texture, inhabiting salt marshes and sub-alpine tracts in the temperate latitudes of both the northern and southern hemispheres. "All the Statices are fine plants worth cultivating," at least so writes the late Mr. Loudon, at p. 539 of the "Hortus Britannicus;" and, without venturing to contradict such an authority, we may state that many species of the genus are plants of very considerable and diversified attractions, and well deserving of extensive cultivation. As may be inferred from the Statices being natives of both the northern and southern hemispheres, some of the species are perfectly hardy, and make admirable plants for rock scenery; but it is among the greenhouse species—those om the southern hemisphere—that we find the most distinct and varied forms, as ell as the richest tints in point of colour.

---

* Heated "brick-work," it seems, may be substituted.

Beautiful, however, as are some of the more recent introductions, such as . *arborea*, *macrophylla*, *puberula*, *Dickensonii*, and though last, not least, *imbricata*, e of the latest acquisitions of Mr. Webb, which has lately found its way to this untry from the Continent, we have reason to believe that there are still a great umber of species to be introduced from the Canary Islands, which are even more tractive than those we already have; and we hope that any persons who have correpondents or friends in that part of the world, will use every endeavour to introduce hese gems to our gardens.

When S. *arborea* was first introduced into public notice through the instruentality of Messrs. Lucombe, Pince, and Co., who sent a magnificent plant, some en or twelve years back, to one of the Chiswick Horticultural Fêtes, from their ursery at Exeter, we recollect that it was universally admired, and very considerable ums of money were offered for it, without inducing the Messrs. Lucombe to part rom their treasure; for as such we have no doubt it was regarded at the time. This as, perhaps, as fine a plant as has ever been seen, even to the present time, being ery dwarf and vigorous, and splendidly covered with bloom; and though the Messrs. Lucombe were the first to cultivate the plant successfully, we believe the erit of first propagating it freely belongs to Mr. Cunningham, of Edinburgh.

In the present state of the art of cultivation, one only wonders how such a plant ould ever have been regarded as either difficult to propagate or cultivate; as, at the present time, he must be a poor culturist indeed who cannot, in a few months, manufacture a good specimen, of either S. *arborea* or any of the other kinds. The error, however, which too many of us have fallen into in the management of these plants, is that of regarding them as alpine plants, and consequently keeping them much more arid, both atmospherically and at the root, than is either necessary or natural to them. The *Statices*, while they require a free porous soil, and abundance of moisture in the atmosphere, are very susceptible of injury from stagnant moisture, especially at the root, and are sooner injured from that than from any other cause. Indeed, if a pot-plant of any of the kinds once gets water-clogged the only remedy, if you wish it to prosper, is to shake it out of the soil and start it again.

To amateurs the Statices are particularly deserving of cultivation, because of the very long time which the flowers continue in perfection; indeed they may be regarded as everlasting, and we have on several occasions noticed them among the dry flowers sold in Covent Garden Market for winter *bouquets*. Although the flowers continue in perfection for a considerable time, it is not advisable to leave them on the plants after they begin to get shabby; as, if they chance to produce seed, which many of the kinds do very freely, they not only weaken the plants, but the latter, having fulfilled the purposes of nature in producing seed, they cease to form a regular succession of bloom buds, and hence become comparatively unattractive.

To proceed, however, to a detailed notice of some of the principal tender kinds, we will begin with *S. arborea*, the tree Statice, and then notice some of the other kinds.

S. arborea is a native of Teneriffe, and was introduced to our gardens in 1830 through Mr. Webb, but was not brought generally into cultivation for several years afterwards, when the splendid plant alluded to above fixed public attention upon it. It is a greenhouse plant; but, to grow it really well, requires a temperature considerably higher than that of the greenhouse, though a stove heat is somewhat too warm for it. Supposing you have nice dwarf bushy plants in small pots, take them about the end of December, and pot them into a mixture consisting of good turfy loam, cut thin from an old pasture, and in a half-decomposed state, turfy peat, leaf-mould, pieces of charcoal of various sizes, and sand in about equal quantities. Mix these intimately together, taking care not to break the lumps too much, but make the compost firm about the roots of the plants. It is not advisable to shift the plants too largely the first time, and therefore from a five-inch to an eight or nine-inch pot will be quite sufficient. Place the plants in a house or pit at a temperature of from 50° to 60°. Keep the atmosphere moist, fresh, and growing, and sprinkle the plants twice or thrice a day in clear growing weather. If the pots can be set on a gentle bottom-heat, the plants will be benefited by it; but it is not necessary to plunge the pots, or to expose the roots to a very exciting bottom-heat.

With a mild bottom-heat and a moist growing atmospheric temperature, this Statice will grow with great vigour, and produce foliage of considerable size; but if the leaves are not well hardened by a free exposure to air, they do not stand long, but die off rather prematurely, and without any apparent cause. This is the case more especially when grown in a strong stove heat; for though, under such circumstances, you may get foliage of a remarkably vigorous description, it never remains healthy when subjected to a greenhouse temperature.

Upon the foliage of the large-leaved Statices, both upon the upper and lower surfaces, and more especially around the axiles of the leaves and the base of the flower-stems, will be seen a sort of gummy exudation, which, if allowed to accumulate, peels off in flakes, like a thin coating of dry glue. This, if left on the leaves, stops the pores and prevents their performing their proper functions, and hence the necessity of syringing copiously daily, and also of washing the plants carefully with a sponge at least once a fortnight. This washing requires to be more attended to in the growing than at any other season; but it is not advisable to neglect it at any time.

As the plants progress in growth they will, if properly managed, be in a fit state to shift into larger pots about the end of February, using the same compost with a handful of charred bones or cowdung added to it. These are found to be very stimulating manures, and have the advantage of being beneficial to plants without encouraging worms or insects, as is too frequently the case with them when used in a raw state. The bones may be prepared by simply throwing them on a slow fire; but the cowdung requires a more particular preparation. For this purpose a fire of ugh wood and garden refuse must be prepared in the same way as for burning harcoal; but instead of covering the heap over with soil, as generally the case, to revent too rapid combustion, coat the whole over with cow-dung, in a crust of from ur to six inches thick; then light the fire and cover the whole of the cow-dung over ith garden refuse, and regulate the admission of air to the interior of the heap so s to prevent the fire burning too rapidly. When the fire has burnt out, the cow- ung will be found standing like a crust over it, and may be removed and kept in a ry place for use. It is not necessary to break it into small pieces in using it for ot plants, though of course every particle may be used; but if kept in tolerably rge pieces—say about the size of filberts or walnuts—it will be found to act echanically as well as chemically. This is one of the best manures for pot plants e have ever used; unlike guano and some of the chemical substitutes now so enerally recommended, it may be used in quantity without any risk of doing jury; and for all soft-wooded plants and many free-growing hard-wooded ones, it ill be found a very suitable and excellent manure. To return, however, to the otting, the plants, if well rooted, may be removed from the nine into twelve-inch pots, aking care to drain them thoroughly, and to use the compost in a free, open state.

After this shift, the plants must be returned to their former quarters, giving hem abundance of air after they have recovered the shift, but not increasing the emperature, except by sun-heat. Syringe the plants copiously every day, and ersevere with the sponge-washing of the foliage as often as necessary. After this hift, the plants will begin to show bloom; but it is not advisable to allow the lower-stems to remain, unless early flowers are required, until the pots are full of oots, and then they will be strong and vigorous. At this time a little liquid anure may be given to the plants once or twice a week; but care must be taken to se it only in a perfectly clear state, and very weak. Being natives of salt marshes, little salt may be added to the manure-water with advantage; but it will be ecessary to administer it with considerable caution, and not too frequently.

When the plants begin to expand their flowers, they may be removed to the reenhouse, and here they will continue to bloom for a considerable period. It is ot, however, advisable to expose the plants to strong sunlight, as the leaves are ery tender, and consequently it will be necessary to shade them during the summer onths.

Statice arborea may be propagated by cuttings of the side branches, not taken ff in the usual manner, but prepared for rooting previously to removing them from the parent plant. This preparation is made by cutting an incision sloping upwards about half way through the stem, in which, to keep it open, a small peg or wedge must be inserted. This, in about a fortnight, will have cicatrised over, preparatory to the production of roots; and then, if a little damp moss is tied on, the roots will strike into it almost immediately, and will be fit for removal into single pots, in about a fortnight or three weeks.

Statice macrophylla—the large-leaved Statice, was introduced from the Canaries in

1816, but was afterwards lost, and was re-introduced some seven years back through a gentleman in the neighbourhood of Hull. It is a plant of very considerable beauty, producing blue and white flowers, and when well grown is a very remarkable and rich-looking plant. We have had plants which produced leaves two feet long and proportionately broad, and flower-stems four feet high; and when in bloom they were very remarkable objects. These were grown in stove-heat, and very rapidly; but, as has been remarked previously, the leaves soon became shabby when kept in a lower temperature.

This plant requires the same treatment as to temperature as *S. arborea*, and the same soil and potting. A nice healthy plant at this season will make an exhibition specimen by July, and will continue to bloom until the autumn. It is not advisable to permit the plants to produce flowers until they are thoroughly established in twelve or thirteen-inch pots, and then they will produce a splendid head of bloom. After the flowers get shabby, the stem must be removed, and through the winter the plants should be kept in the temperature of the intermediate house.

This species is propagated, but not very freely, by the side branches, treating them in the same manner as *S. arborea*. It also produces suckers occasionally from the lower part of the stem; and some of the strong roots, if they are severed from the parent plant and turned up in the way of a cutting, will generally produce a shoot, and may then be removed from the pot, of course protecting them until they are thoroughly established.

(To be continued.)

OBSERVATIONS ON THE CULTURE &c. OF THE GENUS ISOPOGON.

THIS genus belongs to the diversified order of Proteads (*Proteaceæ*). All the species are handsome evergreen shrubs, with a stiff neat habit of growth, all natives of Australasia. About twenty kinds have been introduced; all are very desirable in unique collections of plants.

The following descriptions and selection of those most ornamental will be of service, especially where only a few can be allowed to be cultivated.

I. anemonefolius.—This was the first species brought to this country, being introduced so long since as 1791. It is a pretty plant of dwarf growth, and produces its yellow flowers freely during the summer months, during which time it may be placed out of doors, but it requires the shelter of a greenhouse in winter.—A native of New Holland.

I. anethifolius was introduced in 1796, and is found, generally, in old collections of plants; its flowers are pale rose-colour, rather showy; the plant grows to about five or six feet high.—A native of New Holland.

I. attenuatus.—This species was introduced in 1822; its flowers are pale rose- lour, and are produced abundantly in spring.—A native of New Holland.

I. axillaris.—The flowers of this species are a pinkish-white and produced in illary heads, an exception to the genus; the plant is of free growth, and was troduced, from New Holland, in 1822.

I. Baxteri.—A handsome species. Seeds of it were sent from New Holland to e Botanic Garden, Edinburgh, 1830, by Col. Lindesay. The cone of bloom is of rich rose-colour, and covered with downy white hairs.

I. corniger.—A recent introduction from Swan River, said to be a very pretty pecies, but has at present found its way into few collections.

I. ceratophyllus.—From New Holland, introduced in 1824. Its flowers are pro- uced in terminal heads, in the spring months, and are nearly colourless.

I. divaricatus.—Flowers pale yellow; bush low and spreading.—New South Wales. ntroduced about 1800.

I. formosus.—Perhaps the most beautiful of the genus; it was introduced to Kew n 1805. It remained, however, until a few years ago, almost unknown in British ollections; until Mr. Baxter found it growing in the neighbourhood of Lucky Bay, n New Holland, and sent seeds of it to Mr. Mackay. The leaves are very much ivided, and the heads of flowers purple.

I. longifolius.—Flowers yellow, collected in a globose head.—Native of the outhern parts of New Holland. It was introduced in 1820.

I. Loudoni.—This is both rare and handsome; possibly its flowers are more hand- ome than those of any other species. It was discovered by Mr. Baxter, in 1829, n King George's Sound. Flower-head rich purple.

I. polycephalus.—The flowers of this species are white, and, as its name indicates, re collected in many heads; it flowers in the spring months, and is a very pretty kind. It was introduced, from New Holland, in 1824.

I. propinquus.—Flowers are pinkish-white, and are produced in spring. Seeds of it were sent from New Holland in 1823.

I. roseus is very handsome; it was raised by Robt. Mangles, Esq., of Sunning Hill, from seeds imported from Swan River by Capt. James Mangles, in 1840. The leaves are three-lobed, and the flower-cones red purple. It is nearly allied to *anemonefolius.*

I. scabra.—Of the whole twenty-three or four species of *Isopogon* which have been discovered, *scabra* must be ranked as one of the handsomest. The heads or cones of bloom are large, purple, or deep rose. It was introduced in 1841, by Mr. James Drummond, from the Swan River. See *Mag. Bot.*, vol. x., p. 213.

I. spathulatus.—Discovered by Mr. Baxter in King George's Sound. The flowers are rose-coloured, crowded together at the extremities of the branchlets, and are less conspicuous than some of the other species. It was introduced in 1836. A variety also, which has been named *linearis*, but of more slender growth than the species, has been discovered, and sent to this country by Mr. Baxter.

I. sphærocephalus.—This is a free grower, forming a bush three or four feet high The flowers are bright yellow, collected in several crowded spherical heads, and make a very good appearance. Seeds were collected at Swan River by Mr. James Drummond, who sent them to the Royal Gardens of Kew.—*Bot. Mag.*, 4332.

I. teretifolius.—Flowers dull white, and produced in April. The plant was introduced from New Holland in 1824.

I. trilobus.—Flowers pinkish-white, produced in spring, and the plant introduced in 1803.

The most beautiful of the above are *Baxteri, corniger, formosus, Loudoni, roseus, scabra*, and *sphærocephalus.*

The culture of all the species is alike, and although they were formerly considered difficult to keep, now, since their habits have become better understood, they are found to require very little more trouble than the most common greenhouse plants.

The soil in which they are potted should be composed of equal parts light sandy loam, heath-mould and sharp sand well mixed, but not too finely broken; and it is always best if gathered not too long before being used, for the plants never seem to enjoy themselves so well in a soil which has been long thrown together in a heap.

Like all proteaceous plants, these require in potting, a large portion of drainage. Lay a considerable quantity of broken potsherds at the bottom of each pot, and likewise a few pieces of wood charcoal; also mix a portion of each through the soil.

Although they are not so tenacious of being cramped at the roots as *Proteas* or *Hakeas*, yet it is very advisable to give them plenty of pot-room, especially if the plants are ever placed out of doors during summer, which, however, is not to be recommended.

Proteads are remarkable for the tenderness of their roots, and these plants are not exceptions; it is therefore best never to allow the soil in the pots to become very dry; but if water be regularly supplied with caution, so that both the extremes of either drought or over-moisture be avoided, their roots will make rapid progress.

In the summer season the plants may be placed in any part of the greenhouse where they can receive plenty of light and air, but they will never live if crowded amongst Pelargoniums or other heavy-growing plants, where from the close confinement they are unable to breathe freely. In winter, when the temperature is low and full of moisture, this caution is especially necessary; indeed, at that time, the nearer they are placed to the glass the better, provided there is no danger of the frost reaching them.

Propagation is effected by cuttings and seeds. Cuttings of the ripened wood are taken off at a joint, planted thinly in pots of fine sand, and placed under a hand-glass, but not in heat, as that would destroy them at once. Remove the glass occasionally to allow them to dry, as they are very liable to damp off. Water vith care, but never over the leaves, and let them remain exposed for awhile to get little dry before the glass is again replaced over them.

When struck, pot off in small pots, and place them under a hand-glass until hey have recovered the removal, when they may be exposed to the air of the greenouse and treated like the parent plants.

REMARKS ON THE TREATMENT OF BIGNONIA VENUSTA.

Nearly seven years have elapsed since we figured this gorgeous stove climber n our "Mag. Bot." (vol. vii., t. 123), and there, in treating of its culture, we ecommended that it should be well pruned during the period of rest. It is to be egretted that, notwithstanding the high character we then gave of it, this deserving lant is still very little grown in our stoves, and where it is found, the display of its flowers is generally speaking very imperfect. We are therefore induced to give a urther notice on the subject, in the hopes of stimulating those who have not hitherto possessed this splendid plant, to immediately obtain it, and by pointing out to those vho have it already and have flowered it very imperfectly, a few traits in its culture, by following which they will be able to render it an object of admiration.

The temperature requisite is a moist stove, where, during the growing season especially, a considerable amount of both heat and moisture can be supplied.

The soil most suitable is a mixture of turfy loam, two parts; sandy peat, half a part; and leaf mould, half a part: the latter must be well rotted, and the two former should be of a very fibrous quality, and be only roughly broken.

If the plants are to be grown in pots, large ones should be selected for the permanent flowering ones; for if the roots be at all cramped, the produce of flowers will not give satisfaction to the cultivator. Young plants will progress very rapidly in growth if they are placed in a brisk heat and shifted pretty often, to prevent the roots becoming matted; but to have this gem in the highest perfection, plant it out in a prepared border in the stove, in a situation where its roots will derive some warmth from the heating apparatus; then it will riot in luxuriance, and produce immense festoons of gorgeous flowers, the grandeur of which must be seen to be properly appreciated. Its season of flowering, too, being throughout the winter months, is another quality which renders it doubly valuable.

Water may be liberally supplied from May to the end of August, that is, during the season of growth, both over the foliage and at the roots; but this must be considerably diminished as autumn progresses, that the new wood may have an opportunity of ripening, and the syringing must be altogether dispensed with. When the plants are brought into a state of rest, very little is required even at the roots, although they will not at any time endure drought without injury. A little very thin liquid manure, administered once or twice a week during the time the plant is in full growth, is an excellent assistant to the development of its parts.

When the growing season is quite over, that for flowering commences; this is generally about the middle of October, and usually continues until the middle of February.

As soon as the flowering season terminates, prepare the plants for wintering. If in pots, they may be placed at the cool end of the stove; but if planted out, this of course cannot be done. Now cut down the plant to about five or six feet in length, and prune off all the side shoots so as to have only one stem. This must be repeated every year, for on this in a great measure rests the success of its flowering freely. It must now be allowed to repose, only watering at the roots when the soil shows signs of dryness, and preventing the action of any other excitement until about the middle of April, when it will again show signs of growth. Then top dress, or pot if required. And when the young shoots have extended to three or four inches in length, thin them out to not more than six for training, and plant the rest as cuttings, in pots of sand, placed under a hand-glass in heat.

FLORICULTURAL NOTICES.

NEW, RARE, OR INTERESTING PLANTS IN FLOWER AT THE PRINCIPAL SUBURBAN NURSERIES AND GARDENS.

Aconitum autumnale. In the gardens of the Horticultural Society, Chiswick, this species is now blooming freely; it has pale-blue flowers, and will make a handsome addition to our flower-garden. Mr. Fortune introduced it from China.

Æschynanthus miniatus. Messrs. Veitch and Sons, Exeter, forwarded a specimen of the above to us, having large clusters of flowers, each flower an inch-and-a-half long, of a deep crimson colour, with dark-brown bars in the throat, and partially down the petals. It is a small-growing species, with rich, glossy green foliage, and evidently a profuse bloomer.

Barkeria Skinneri major. In the nursery of Messrs. Loddiges, Hackney, we found a splendid variety of *B. Skinneri*, called by them the *var. major*. The flower-scape nearly two feet long, holding upwards of thirty flowers expanded, of a deep, reddish, lilac-purple, with stripes of bright gold colour down the lip. In habit it is much stronger, foliage longer, and double the breadth, apparently less delicate than the old variety, and in every way superior and more valuable.

Clerodendron macrophyllum. Messrs. Veitch and Sons exhibited at the Horticultural Society's Rooms, Regent Street, a handsome specimen of this free-blooming species. The plant was about three feet high, and completely covered with a dense mass of small white flowers from the base to the top of the plant. The foliage is large, upwards of ten inches long by four broad, of a dark-green colour. Viewed as a plant producing an immense mass of flowers in so small a space, this species is unequalled.

Eria spe. nov. An unknown species, introduced from Borneo by Mr. Low, of Clapton, in whose collection it has flowered. The species was found on the banks of a river, growing on trees in large masses, with flower-scapes eight or ten inches long, closely packed on the stem, and of a pure white. No idea can be formed of the beauty of the plant from the specimen in flower, but when in health, and flowering as freely as in its native country, we think it will be an excellent addition to our stoves.

Franciscea gracilis. In the exotic nursery of Messrs. Knight and Perry, Chelsea, is flowering a very pretty shrub, of neat habit and rich green foliage. The flower has a narrow tube about four inches long, spreading at the extremity to about an inch-and-a-half in diameter, a pale cream-colour, and slightly fragrant. The flowers have an interest differing from most of the species by sting upwards of a week in good condition, are produced freely, and make a neat and pretty pearance in the hothouse.

Gesneria macrantha purpurea. A dwarf plant, with flowers, stem, and leaves clothed with oolly hairs. The species flowers at about six inches high, producing four most intensely bright arlet blooms, about three inches long ; for those to whom size is an object, this species will be a ost useful one, as it rarely grows larger than here represented. It was in flower in the nursery Messrs. Knight and Perry, Chelsea.

Ixora spe. nov. Messrs. Rollisson's, Tooting, have a species of Ixora in flower imported by em from Java. The inflorescence much like those of *I. coccinea ;* perhaps the individual flower ay be a little larger, and brighter in colour. The habit and general appearance is that of *coccinea.*

Justicia Carthaginensis—an old though scarce species in our gardens—has been flowering undantly in the stove of Mr. Glendinning, Chiswick Nursery. The colour is a deep, rich lilac, e centre of the lower petals being striped with white. It is a profuse bloomer, has an excellent abit, enriched with foliage of a deep, bright, bluish-green.

Lobelia fulgens, *var.* We were delighted, a short time ago, to find in the flower-garden of e late Mr. Wells, Redleaf, Kent, several most beautiful varieties, both in size, form, and colour. ne of the varieties, called *L. fulgens multiflora,* has most brilliant scarlet flowers, the three lower etals an inch-and-a-half long, spreading out to about the same length from point to point. The ower-stem rises four feet, sending out laterals close to the ground ; foliage a deep green, ightly tinged with reddish-purple at the back of the leaves, stem, and peduncles. A second ariety, *L. fulgens pyramidalis,* differs slightly from the above in colour, being of a lighter and righter scarlet, the lower petals longer, narrower, and more pointed : the habit same in every espect. A third variety, called *L. Marryatti,* is less robust, not rising more than from two to ree feet high. The flower is deep crimson-purple ; some of them become mottled with a pale ose-colour, and have a singular appearance. The foliage is neat, and a bright green. They are all ost useful varieties for cultivation.

Nymphæa spe. nov.—a most interesting and handsome aquatic—has been flowering for some me past in the stove of Messrs. Knight and Perry, Chelsea. The species has flowers of the urest white, and the centre is enriched with a mass of golden-coloured stamens ; when in fine erfection, measures more than six inches in diameter. The bud is a beautiful bluish-green, and xpands generally about eight in the evening, and closes at eight in the morning, and is highly ragrant. The foliage is handsome, of a deep green, and beautifully reticulated.

Phalænopsis amabilis. Mr. Schroeder, of Stratford Green, has lately had a most superb ariety of this charming orchid in flower, having blooms nearly twice the size of any specimen itherto seen by us. The petals were so fleshy and opaque that the white was pure and dazzling ; his, with a golden mark or two in the centre of the flower, and the entire absence of pink or any ther colour, renders it the most charming specimen we have seen. The variety is the one with ong, narrow leaves, and the whole exhibited great merit in the cultivation.

Solanum Pseudo Capsicum. This old plant we noticed in the nursery of Messrs. Knight and Perry, Chelsea, and think a very desirable one for ornamental purposes at this season, not for ts flower, which is small, white, and insignificant, but for its beautiful orange-coloured fruit, about he size of a fine cherry, which are produced in abundance. The richness of the fruit is increased y the neat foliage of the plant. The species is one that deserves some attention from cultivators, as it makes a gay appearance in the greenhouse at a time when both flowers and fruit are scarce.

OPERATIONS FOR DECEMBER.

December being a dark and wet, or frosty and snowy month, the management of all plant-houses must be regulated accordingly. Thorough cleanliness at this time of the year especially is indispensable, and, if anything, more particularly in cold pits and frames, where fire is not used. Light, too, is greatly diminished; therefore, so arrange the plants as to obstruct as little of it as possible. If plants are crowded close together, whether they are inhabitants of the greenhouse or stove, no judicious potting or care, however great, can retain them in health and vigour, if the air and light cannot penetrate freely through and around them. When crowded they are seen to make efforts to reach the light, and thus become what practical men call drawn; and not unfrequently the leaves and more tender branches rot, and the plants thus become disfigured.

Stove plants, for the most part, have now perfected their growth; although in a promiscuous collection some are now just commencing to grow, and others are coming into flower; but such as are in a proper condition should be brought into a state of rest. This is done by introducing them into a cooler and more genial atmosphere, where they will receive no excitement. *Orchids* which have perfected their growth, are also brought into repose by the same means—a lower and somewhat dry temperature, by withholding water from the roots, by entirely dispensing with syringing, by diminishing the amount of atmospheric moisture, and by admitting a larger amount of air than usual, thus lowering the temperature. All shade, too, may be removed, and any plants hanging in baskets near the glass, should be hung a little lower, that they may not be subjected to the vicissitudes of the weather outside. All the species which are still in a state of growth, must have every facility afforded them for perfecting their various developments.

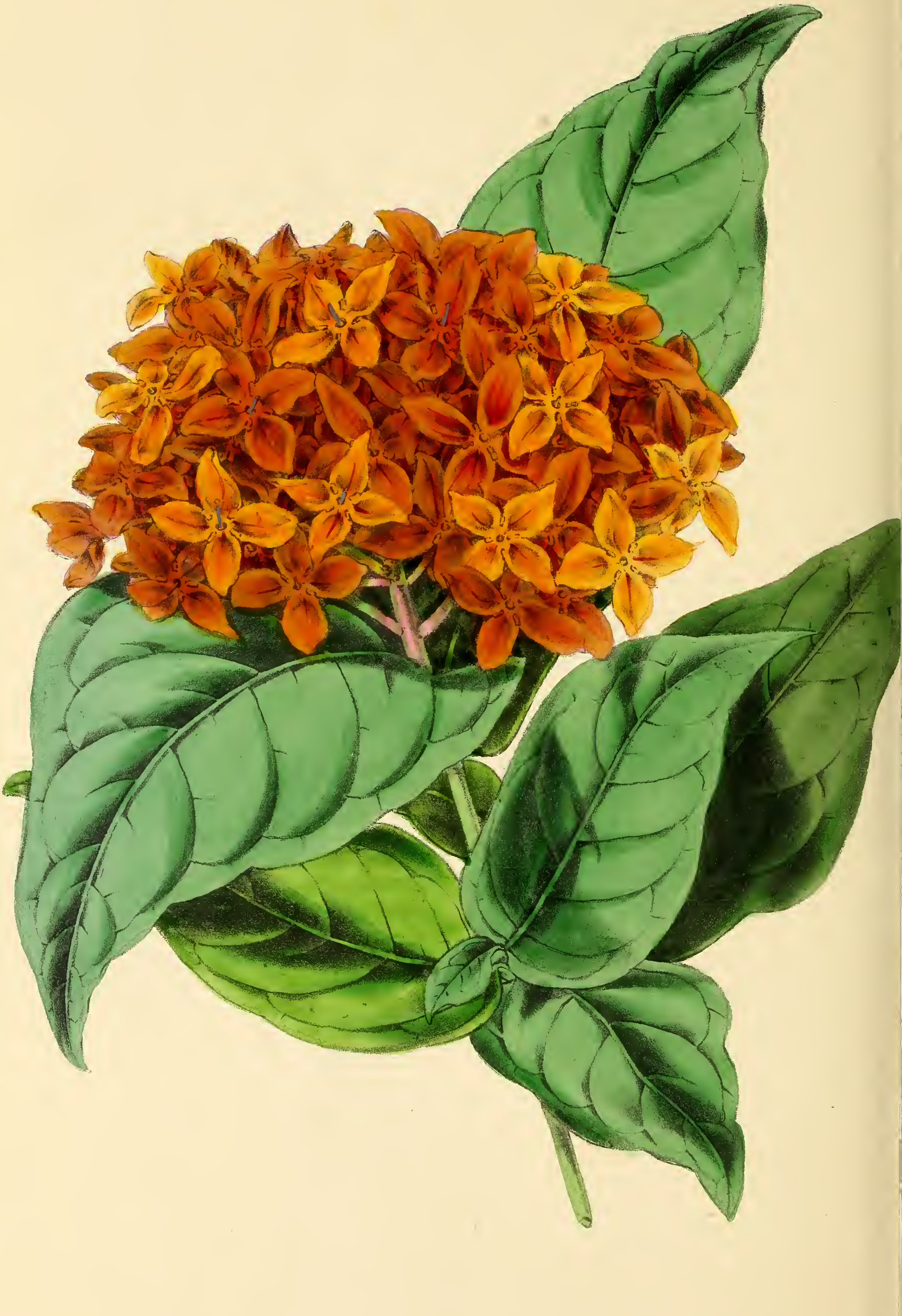
The greenhouse and conservatory are now both very gay, and where there is a sufficiency of Camellias, this display can be prolonged throughout the whole of the dreary months of winter. *Corræas*, *Epacrises*, *Polygalas*, *Pimeleas*, *Acacias*, and many other plants, will now be coming successively into bloom; administer water with care, and do not wet the leaves of any plants more than necessary at this season. Keep also a mild and genial atmosphere, about 50 degrees by day, with plenty of air, and descending to about 40 degrees by night. Bulbous and tuberous-rooted plants, as *Amaryllis*, *Oxalis*, *Lachenalia*, &c., now awaking from their repose, should receive a moderate supply of water, and be repotted and prepared for growth and flowering.

The stock of plants in pits and frames for bedding out in spring, must come in for their share of attention. They should be kept perfectly clean and free from dead leaves, and be so arranged that light and air can pass freely amongst them, and keep them as hardy and airy as possible; if the pots were plunged to the rim in saw-dust or coal-ashes, the necessity of often watering would be obviated; but this is by no means indispensable, provided they have a nice dry surface of coal-ashes on which to stand. In severe nights cover securely with mats or litter, to protect the plants from injury.

Pits used for forcing flowers, if not heated by hot-water apparatus, should now be filled with fallen oak leaves, and if a portion of well-worked manure be mixed through, the leaves will be brought into immediate action. Over this bed of leaves lay a few inches of sifted rotten tan. Bulbs for forcing should be successively introduced in small quantities, and be plunged over head in the tan; no water will then be required to be given until after they are above the surface. Bring in also Azaleas, Rhododendrons, Lilacs, Roses, and Sweet Briars.

In the sheds, look over the Dahlias which were taken up and dried; stow them away and see that they are properly labelled.

In the open air, remove any decayed or decaying vegetation, as leaves, stems of perennial plants, &c., and throw them on the rubbish-heap to form vegetable mould. All ground unoccupied dig or fork up roughly, that it may be fully exposed to the action of the weather. Never rake ground or render it smooth in winter, for it is sure to unite and become sodden. Insects are also destroyed by rough digging; for although they are not often injured by frosts, yet their eggs, &c., are brought to the surface and exposed to insect-eating birds, which in winter search narrowly into every nook and crevice.



S. Holden. del. & Lith.

Ixora Javanica.

IXÒRA JAVÁNICA.

(Java Ixora.)

Class.
TETRANDRIA.

Order.
MONOGYNIA.

Natural Order.
CINCHONÀCEÆ.

Generic Character.—*Calyx* with an ovate tube; imb small, four-toothed. *Corolla* monopetalous, salver-shaped, with a slender tube, and a four-parted spreading limb. *Stamens* four, slightly exserted. *Style* equal in lenth to the tube of the corolla, or sometimes a little longer, two-parted at the point; lobes of the stigma spreading or revolute. *Ovary* inferior, two-celled. *Fruit* a drupaceous berry, crowned with the permanent calyx, two-celled, each cell containing one or two seeds.

Specific Character.—*Plant* an evergeen spreading shrub, growing from three to four feet high. *Leaves* opposite, on short petioles, ovate-oblong, acuminate, smooth. *Stipules* broad at the base, acute, sometimes awned. *Flowers* of a rich orange-vermilion, in terminal corymbs; corymbs on long peduncles, trichotomous, divaricate. *Calyx* with the four segments of the limb obtuse. *Corolla* with the four segments of the limb oval and rounded. *Stamens* alternate with the segments of the corolla.

Synonyme.—Pavetta Javanica *Blume.*

This very beautiful species bears some resemblance to *Ixora crocata,* but is much superior to it both in flower and habit. It is a native of Java, as its specific name indicates, where it grows in the woods on the mountain sides, and forms a broad-spreading bush truly beautiful to behold.

It has been lately introduced by Messrs. Veitch and Son, of Exeter, through their collector. A fine specimen was shown by the above gentlemen at Chiswick, in July last, when our drawing was permitted to be made, and from which we judge that it is a very free growing kind; and being a first-class plant, it must be regarded as a valuable acquisition to our stoves.

Nothing peculiar is required in the successful treatment of this fine plant; precisely the same system should be pursued as recommended for *I. Bandhuca,* Mag. Bot., Vol. ii., t. 265; Vol. iii., t. 75; and pages 40 and 179 of the present volume, where a system of growing them to great perfection is given in detail.

Iswara is the name of a Malabar idol, to which were offered the flowers of some of the species.

PHLÓX LEOPÓLDIANA.

(King Leopold Lychnidea.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
POLEMONIÀCEÆ.

Generic Character.—*Calyx* tubular, deeply five-cleft, connivent. *Corolla* salver-shaped; tube elongated, limb twisted in æstivation, with cuneated segments. *Stamens* inserted above the middle of the tube. *Stigma* trifid. *Capsule* three-celled, cells one-seeded.

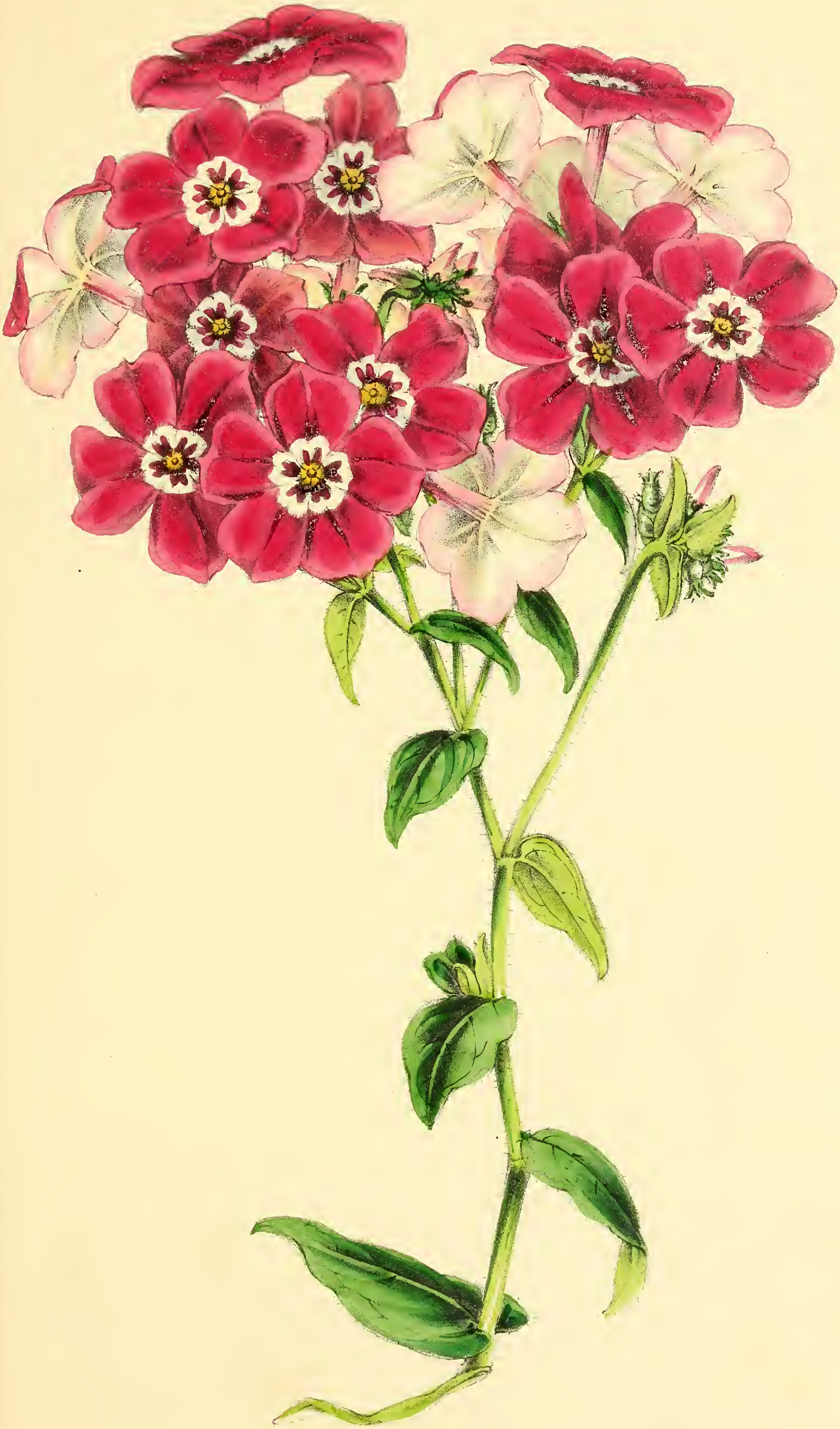
Leopoldiana.—A hybrid; root perennial; stem growing a foot or eighteen inches high, with a habit like *P. Drummondii;* the flowers are produced in terminal corymbs; tube of the *corolla* long and slender; limb five-cleft, spreading, of a deep rosy carmine, eye very dark crimson, and throat white.

This most beautiful Phlox was raised a short time ago in Belgium; it is a hybrid of *P. Drummondii* (which was figured in our Magazine, Vol. ii., t. 221), and in habit greatly resembles that species. No kind can be better suited for bedding out, or training against a low wall or trellis, as its stems are slender and spreading; the flowers are large, and produced in great profusion; their colours are more brilliant and striking than those of any other known kind; and where the soil is suitable, it is a plant of very rapid growth. It will grow in any common garden soil, but that most suitable, is a very light rich sandy loam.

It can scarcely be considered hardy; but like *P. Drummondii* requires a little protection from frost and wet. Young plants are easily raised from cuttings planted in pots of soil or sand, at the same time, and after the same manner as those of Verbena; they are preserved through the winter in a cold pit or frame, and planted out when the spring frosts are over, at the usual time of furnishing the flower-garden with Pelargoniums, Heliotropes, and Verbenas. It may also be increased by seeds, but these cannot be depended upon, as the offspring produced this way seldom equal the parent plant.

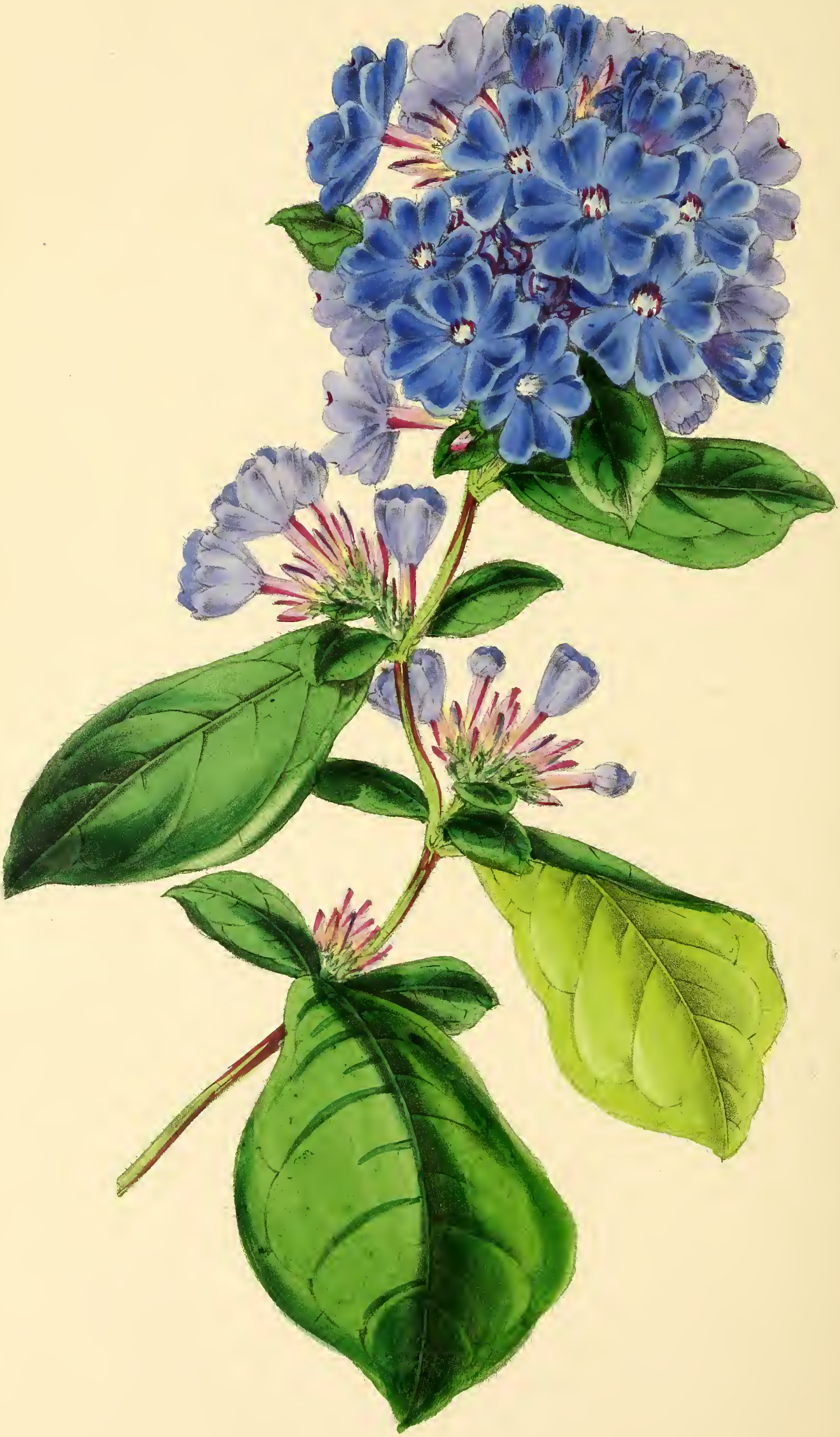
For the opportunity of figuring this handsome plant we are indebted to Messrs. Henderson, Pineapple-Place, London, in whose nursery it flowered abundantly in September last, when our drawing was made.

The name is derived from *Phlox*, flame, in allusion to the bright colour of the flowers.



S. Holden. del. & Lith.

Phlox Leopoldiana



S. Holden, del & Lith.

Plumbago Larpentæ.

PLUMBÀGO LARPÉNTÆ.

(Lady Larpent's Lead-Wort.)

Class.
PENTANDRIA.

Order.
MONOGYNIA.

Natural Order.
PLUMBAGINÀCEÆ.

Generic Character.—*Calyx* tubulose, plaited, five-toothed, persistent. *Corolla* monopetalous, salver-shaped, limb five-parted. *Stamens* hypogynous. *Styles* filiform. *Stigmas* acute. *Ovary* superior, one-celled, one-seeded.

Specific Character.—*Stems* slender, zigzag, covered with scales and close-pressed hairs. *Leaves* obovate, acute, tapering to the base, covered with minute scales on each side, finely serrated, and fringed. *Flowers* violet, in close terminal heads. *Bracts* and *sepals* smooth, shining, ciliated, perfectly destitute of glands.

For the opportunity of figuring this valuable addition to our autumn border flowers, we are indebted to Messrs. Knight and Perry, in whose nursery at Chelsea it flowered in such immense profusion in October last, that, on a fair computation, no less a number than 4000 blossoms were perfected.

It is a native of China, and was discovered by Mr. Fortune, growing on the ruined ramparts of Shanghai; it was subsequently found by Mr. Smith, in the same locality, and also growing out of the stone-work of the city wall; but is stated to be, even in its native country, a very rare plant.

For its addition to our collections, we are indebted to the latter gentleman, who sent seeds to Sir George Larpent, by whom it was raised, and a flowering specimen was shown at a meeting of the Horticultural Society in July last, when a prize was awarded to Mr. Eyles, Sir George's gardener.

The flowers, as will be seen by the figure, are of a deep rich violet, beautifully tinted in the throat with fine red. The plant also is sufficiently hardy to endure the open air in summer and autumn, so that its real value is greatly enhanced by the use to which it can be appropriated.

For the successful cultivation of this plant, its native localities would point out the following several particulars.

Select a soil naturally of a light and sandy texture, or render it so by making a mixture of peat, light loam, and sand.

The pots in which the plants are placed to grow should be filled with at least one fourth of broken crocks as drainage, and a few should also be mixed through the soil.

A cool dry pit will probably be found better than any other situation for preserving them through the winter. Set the pots on a layer of sifted coal-ashes or other dry surface, and allow them to be exposed to as much air as the weather will permit.

Water must be supplied very sparingly through the winter, and by no means must the leaves be wetted. In spring, when the growth begins, they may have a fair quantum afforded if the drainage is good.

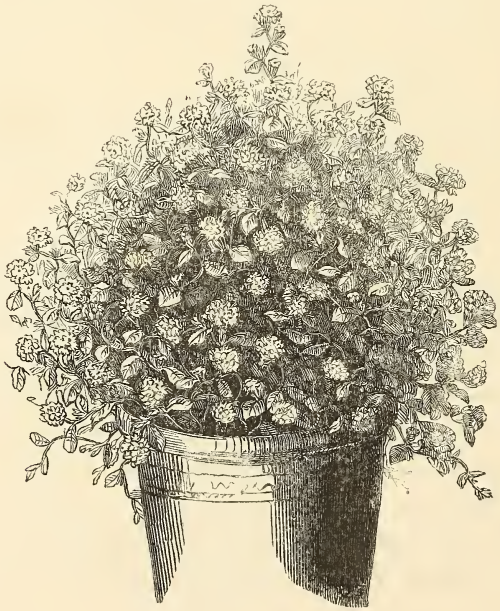
As the spring frosts begin to subside, expose the plants to the open air every fine day; this will harden the wood and prepare them for their summer quarters in the flower-garden.

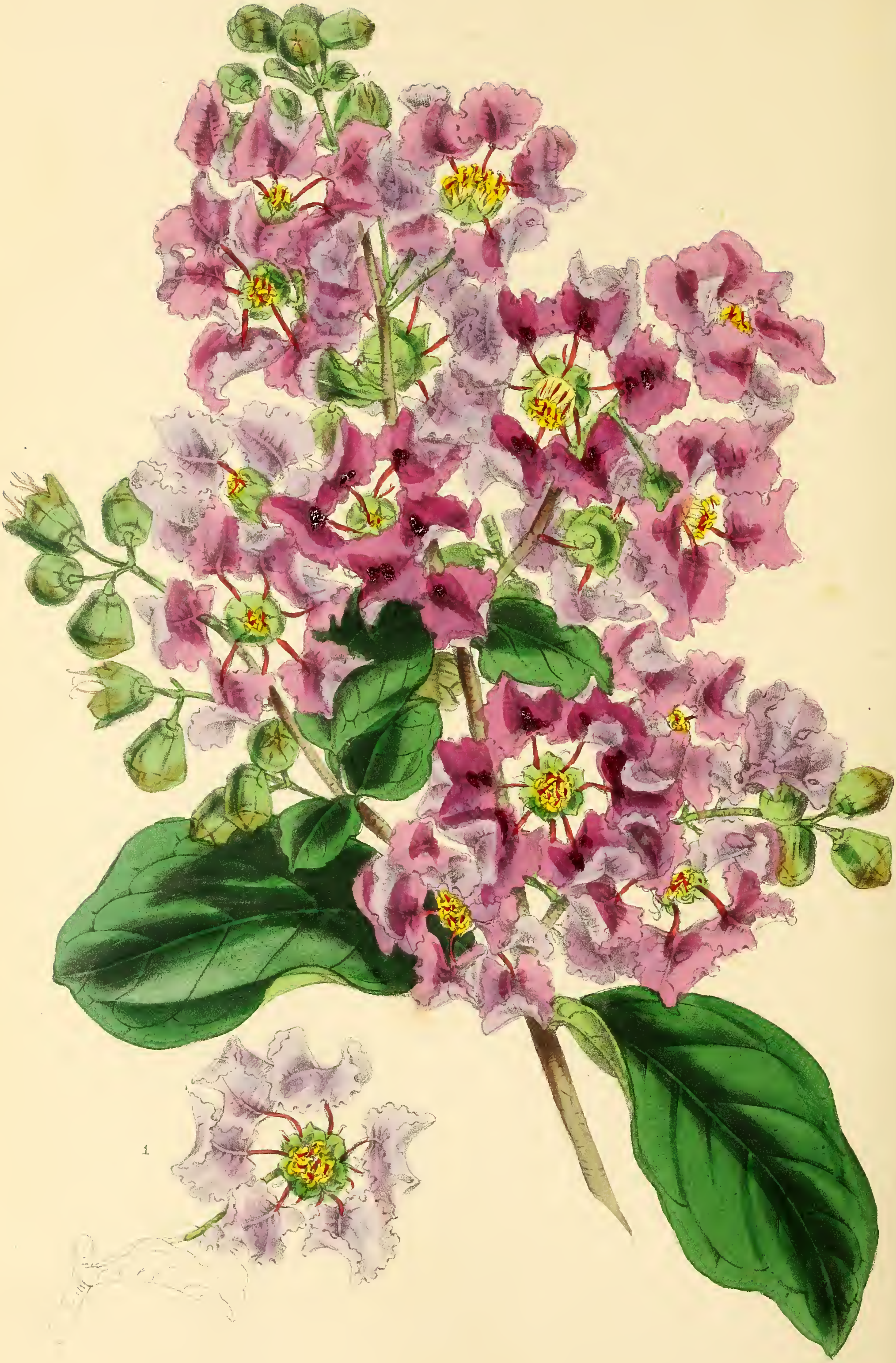
When the parterre may with safety be furnished with Verbenas, Heliotropes, and Pelargoniums, this plant may occupy one or more of the beds, than which perhaps none will be found more suitable or produce a more pleasing effect.

Propagation is effected by cuttings, which are planted in sand, and treated like those of Verbena and other similar plants.

The generic name is derived from *plumbum*, a disorder in the eyes, which some species were formerly supposed to cure; and the specific name was given by Dr. Lindley, in compliment to Lady Larpent, at the request of Messrs. Knight and Perry.

The annexed vignette is a very good representation of the habit of this very desirable plant.





Holden del & Lith

Lagerstræmia elegans.

1 L. Indica

LAGERSTRŒ̀MIA ÉLEGANS.

(Elegant Lagerstrœmia.)

Class.
ICOSANDRIA.

Order.
MONOGYNIA.

Natural Order.
LYTHRÀCEÆ.

Generic Character.—*Calyx* bibracteolate at the base, six-cleft, campanulate ; lobes valvate in æstivation. *Corolla* consisting of six petals, alternating with the lobes of the calyx, and inserted between the divisions at the top of the calycine tube. *Stamens* many, of which the six outer ones are the largest, inserted lower in the tube of the calyx than the petals. *Ovary* three to six-celled. *Style* one. *Fruit* a *capsule*, three to six-valved, girded by the calyx, three to six-celled. *Seeds* winged.

Specific Character. — *Plant* a deciduous shrub, growing eight or ten feet high. *Branches* numerous, tetragonal, angles winged. *Leaves* opposite, entire, roundish-ovate, acute, glabrous, of a glaucous green. *Peduncles* axillary, but constituting terminal many-flowered panicles. *Flowers* deep rich rose-colour, varied with yellow. Segments of *calyx* neither furrowed nor plaited. *Petals* curled, on long claws.

The subject of our present plate resembles in some respects the *L. indica* (1), but its growth is far more robust, its flowering season much later, and its whole habit, when the two are seen together, very distinct. The blossoms, which are rather darker coloured, and a little smaller than those of *L. indica*, are produced in fine spreading panicles at the extremities of the branches, are exceedingly showy, and continue in perfection for a long time.

It is a native of mountains in the East Indies, where it was originally discovered by Dr. Wallich, and by him introduced to the Botanical Garden of Calcutta, from whence it reached this country in 1841.

The cultivation of this magnificent shrub, in connexion with the other known members of this fine genus, is given in detail at page 209 of the present volume of our Magazine, to which our readers will be so kind as to refer. It might, however, be here mentioned, in addition, that too much cannot be said in favour of the most extensive cultivation of every known species of this genus.

The name was given by Linnæus in honour of Magnus Lagerstrœm, of Gottenburg, Director of the Swedish East India Company, and who was a great patron of Botany and Natural History.

The greater part of Lythraceous plants are herbaceous ; some form shrubs, and a very small proportion grow into timber trees. The order is divided into two sections, *Lythreæ* and *Lagerstrœmeæ.* Of the first, many species are used for medicinal purposes, and in their native countries are highly esteemed. Others are put to various domestic uses. The flowers of *Lythrum Hunteri*, and *Grislea tomentosa*, which are of a beautiful red, when mixed with those of *Morinda*, form a fine dye. *Lawsonia inermis*, of Linnæus, or *alba* of some authors, is generally supposed to be the cypress or gopher wood of the ancients; the leaves, also, when pounded and made into a paste, constitute the dye called Henna, with which the Egyptian women stain their nails and feet. Of the second division, *Lagerstrœmeæ*, may be mentioned *Physocalymna floribunda*, the flowers of which, according to Don, resemble those of *Lagerstrœmia:* the wood is rose-coloured, and much esteemed by cabinet-makers.

In Germany it is called *Rosenholz;* in the province of Goyaz, in Brazil, *Cego machado;* in the province of Rio Janeiro, *Pao de rosa.* It is, however, not the Rosewood of English cabinet-makers, as Don imagined. See *Dr. Lindley's Vegetable Kingdom*, 2nd edition, under Leguminous Plants.

METHOD OF TREATING DYSOPHYLLA PUMILA, STELLATA, AND VERTICILLATA,

SO AS TO MAKE THEM PRETTY OBJECTS DURING SUMMER.

THESE three species of plants, although long introduced into our gardens, are yet very scarce, and have been little esteemed as plants of ornament. They are all perennials, and perhaps in their native countries re-germinate vigorously for many years; but with us it is far the best to treat them as stove annuals, for with the best management they never seem to thrive again after they have freely flowered and borne seeds, which, if properly treated, they produce liberally.

They are all natives of the tropics, growing in ditches or shallow rivers; they may therefore be considered as stove aquatics. They attain from nine to eighteen inches in height; their leaves grow in whorls, and in habit are not much unlike some species of *Galium*. The flowers are produced in close but slender spikes from two to three inches long, at the extremity of each stem; individually, they are small and insignificant, but from their disposition, the plants, when in bloom, are rendered exceedingly pretty.

Increase is effected both by seeds and cuttings; the former are sown early in February at the same time as those of tender annuals. The soil should be composed of two parts sandy peat and one part light loam; break it pretty fine, but do not remove the fibres; with this fill the pots in which the seeds are to be sown; make the surface as smooth and fine as possible, then water it well, and when this has drained through, sow the seeds thinly upon the plain surface, and gently press them down with the back of the hand; some persons advise scattering a thin layer of fine sand over the seeds, but this is not necessary; place each pot in a pan of water, and set them in a hotbed or other situation where a lively heat is kept up; cover them with a hand or bell-glass, and, in the course of a month or so, they will appear above the surface.

When thoroughly up, remove the hand-glass to prevent their being too much drawn, and as the plants advance in growth, water may be administered over-head with a very fine rose. When they are large enough to transplant, put a single plant in each 60-sized pot filled with the same soil in which the seeds were sown; place each pot in a pan of water, and repot as often as the plants require it, until finally they should be placed for flowering in 32-sized pots, making the soil more rich than previously, with a portion of well-rotted manure. Give a good supply of water, both over-head and in the pans beneath the pots, and they will flower well and give satisfaction to the cultivator.

Cuttings are planted in a mixture of peat and sand, and are placed in heat under a hand-glass. They may also sometimes be increased by division; but as the plants are short-lived, it is better, if possible, to propagate by seeds, as above.

FLORICULTURAL NOTICES.

NEW OR BEAUTIFUL PLANTS FIGURED AND DESCRIBED IN THE LEADING BOTANICAL PERIODICALS FOR NOVEMBER.

Aquilegia leptoceras. This very pretty plant was raised in the Horticultural Society's Garden from seeds received from Dr. Fischer in 1846. It is a dwarf herbaceous plant, growing nine inches high. Each flower-stem bears one or two flowers on slender pedicels. The flowers are pale bright violet, with the tips of the sepals greenish, and of the short petals a clear bright straw colour. It is a native of Siberia, and quite hardy, growing best in a mixture of light sandy loam and a little leaf-mould. It is increased by seed sown as soon as ripe, and forms a good plant for rock-work.—*Bot. Reg.*, 64.

Bletia Gebina. A terrestrial Orchid, with flowers about as large as *B. hyacinthina*, and from six to eight in a spike, nearly white, with a faint tinge of blush. The lip is pale delicate violet. It is stated to be a native of Japan, and being nearly hardy, is a very desirable plant where there is no stove, as it may be grown in a cold pit kept close during summer. It should be kept rather dry while in a dormant state, but during growth should be well supplied with moisture and heat. —*Bot. Reg.*, 60.

Dendrobium cretaceum. This is a very distinct species, remarkable for the dull chalky whiteness of its flowers, which are nevertheless neatly pencilled with crimson on the lip ; this is owing to the whole surface of the lip, inside and outside, being covered with a short close white fur. It was introduced by Messrs. Veitch, through Mr. T. Lobb.—*Bot. Reg.*, 62.

Eria Convallarioides Major. The old species is hardly to be recognized in this beautiful variety. The oblong heads of flowers are of the purest ivory white, which is rendered still purer by the presence of small brownish bracts at the base. The surface, too, of every flower is so polished as to resemble that of white cowries or similar shells.—*Bot. Reg.*, 63.

Eucalyptus macrocarpa. One of the finest among the many fine plants lately sent by Mr. James Drummond from the Swan River Colony, is the present new species of *Eucalyptus ;* the large and copious foliage is covered everywhere with glaucous white powder, and the bright red flowers nestled among the leaves form a striking object. Drummond found it at Guangan, an open sandy desert, commencing about eighty miles E.S.E. of Freemantle, and continuing for two hundred miles, on the borders of which this tree grew in an immense forest.—*Bot. Mag.*, 4333.

Iris aurea. This Iris was raised by Messrs. Whitley and Osborne of Fulham, five or six years ago, from Indian seeds presented to them by Dr. Royle. It flowers very freely, with the habit of *Iris ochroleuca*, and grows as tall. It will be an acceptable addition to the list of showy hardy perennials.—*Bot Reg.*, 59.

NEW, RARE, OR INTERESTING PLANTS, IN FLOWER, IN THE DIFFERENT SUBURBAN NURSERIES AND GARDENS.

Agalmyla staminea. Messrs. Veitch and Sons, of Exeter, forwarded for exhibition, to the Horticultural Rooms, Regent Street, last month, a most remarkable and very handsome plant, very singular, too, for its flowers have all the characters of the Æschynanthus tribe, while the habit differs very much from any of that family we are acquainted with. The specimen here noticed was about two feet high, with foliage six inches long and four broad, thick and fleshy, of a bright glossy green, a massy foot-stalk, about three inches long, fixing the leaf to the stem. The flowers were two inches long and of the brightest scarlet, rivalling the Scarlet Pelargonium in intensity of colour, and are produced at the axils of the leaves in dense clusters of upwards of fifteen flowers, completely enveloping the stem. The stamens project about an inch beyond the mouth of the flower, and are of a bright purple colour. As a specimen for cultivation, we should consider this to be the finest of the stove epiphytes we have yet seen. Messrs. V. received it from Java through their indefatigable collector Mr. Lobb.

Calceolaria cuneifolia. A species received from Bolivia in seed, and now flowering for the first time in the Horticultural Society's Gardens, Chiswick. It has a great profusion of pale yellow blossoms, and continues in bloom a considerable time. A most useful plant for bedding out.

Gloriosa Leopoldiana. In the nursery of Mr. Glendinning, Chiswick, this variety has recently been in flower; it differs from the old *G. superba* by the flowers being a self colour, that is all yellow; most probably a variety only. It will be very useful to grow with the *G. superba*, so as to gain a variety of colour. The habit is the same in every respect.

Gloxinia albo-coccinea. Some time ago we received from Messrs. Backhouse, Fishergate Nurseries, York, flowers of this charming hybrid Gloxinia; we could not see the beauty of its colouring, from the flowers being much injured by carriage; since then we have seen a growing specimen at Messrs. Rollissons', Tooting, which quite reaches our expectation, and certainly it is the prettiest variety that has yet been produced. The flower is pure white, having a deep broad dash of crimson down the throat and lower petal. The habit is neat and good.

Lobelia cœlestis. A very pretty and dwarf-habited Lobelia, with bright cœrulean flowers; the plant not rising higher than six inches, blooms freely, and will be a most useful bedding plant.

Lobelia braziliensis. Another fine hybrid variety, but tall, being near four feet high, two of which are occupied by the flowers, which are closely fixed on the stem; they are about an inch and a-half long, tubular, and a bright rosy carmine colour. We found both the above in the nursery of Messrs. Knight and Perry, King's Road, Chelsea.

Miltonia candida. We have again to record a fine specimen of cultivation, a notice of which we hope will please our readers. The specimen was in flower a month ago in the stove of Messrs. Rollisson, Tooting, and had nearly forty flower-scapes, each having from six to eight of beautifully variegated flowers, fully developed, making a dense mass of bloom completely hiding the foliage. The plant was in excellent health, growing vigorously.

Odontoglossum grande, *var.* labello album. Messrs. Loddiges, Hackney, have had some varieties of *Odontoglossum grande* blooming finely, much larger in flower, while the lower part of the labellum is quite void of the brown spots common to *O. grande*. We thought the colour of the sepals and petals not quite so rich in the brown; probably the lateness of the season may have had some effect in diminishing their brightness; in other respects it is a very handsome and fine variety, worthy a place in every orchideous collection.

Renanthera coccinea. A fine plant of this beautiful species was exhibited at a recent meeting of the Horticultural Society, Regent Street, by Mr. Woodham Death, of Nettleswell, Harlow, who stated that it was the third time of this specimen flowering in twenty-three months, a very rare occurrence, and one certainly never before under our notice, though Mr. D. says he finds no difficulty in blooming them. His treatment is to keep them in a cool greenhouse, fully exposed to the sun, with little or no artificial heat to assist them in blooming; and certainly a more handsome or better flowered specimen is rarely to be met with than the plant under notice.

Salvia sp. nov. A fine looking species, having long racemes of deep violet-blue coloured flowers, has lately been flowering profusely in the grounds of Messrs. Knight and Perry, Chelsea. The plant grows about four feet high, sending laterals out close to the ground and up the stem, covered with flowers; foliage ample, not large, and of a rich green. It will be a useful addition to the flower-garden.

Ruellia Purdieana. In the nursery of Messrs. Rollissons, Tooting, we found this species in bloom. Like most of the tribe, the flowers are not produced abundantly, but only in pairs, one on either side of the stem in the axils of the leaves; they are a brilliant rose colour, verging towards scarlet; this colour, allied to neat and handsome foliage, renders the species rather attractive.

Petunia sp. nov. Messrs. Veitch and Son, Exeter, have recently received from their collector in Peru a curious-looking species under the name of Nolana *spe.*, which most probably will neither belong to that genus, nor the Petunia, but prove a new genus altogether. It is certainly a very novel and beautiful flower, almost white, with a deep crimson throat, shading down the middle of each petal. The plant seems to have a creeping habit, has rather coarse foliage, downy, and of a pale green colour. Will be probably a most useful assistant to the hybridizer.

OPERATIONS FOR JANUARY.

January, although proverbially a cold month, is yet, generally speaking, rather a busy one; much, however, of what is done now, is under glass. In the stove the greater part of plants are in a state of repose, and their rest should be kept as perfect as possible: 55 degrees of heat by night is quite sufficient, if we except *Barringtonia speciosa* and a few others of equally tender habits, which can never be exposed to a temperature below 60 degrees, without injury. Water sparingly at the roots, but be careful that the atmosphere never becomes too dry; this is easily obviated by throwing a little water occasionally upon the floors; avoid, however, as much as possible raising a steam, as this would cause drip, which is always injurious at this time of the year.

In the Orchid house, rest also is what must now be attended to. The plants will require but little water, and the temperature should be low, yet the atmosphere, like that for stove plants generally, must be prevented from becoming too arid. By the end of the month such kinds as begin to show signs of growth should be repotted; but what is called the general potting season, will scarcely commence before next month. The temperature need not exceed what is recommended above for stove plants generally.

In the Conservatory and greenhouse, cleanliness both of the plants, the floors and the stages is of importance at this time of the year. Many of the plants are now in flower; these houses, therefore, will be places of much resort. Camellias in bloom will be benefited by a supply of clear weak liquid manure once or twice a week, but it should be made tepid, or at least equal to the temperature of the house in which they stand. Wherever insects are prevalent, fumigation must be resorted to, but it is always preferable, whenever any plants are infested, to remove and fumigate them at once; any increase of these depredators will be then effectually prevented. Ericas, however, before being exposed to the fumes of tobacco smoke, should always be well syringed, otherwise they are sure to receive injury. Chrysanthemums which have done flowering should be cut down and removed to a dry place. Epacrises, Corræas, and many other plants of like habits will now be in bloom; place them in a very airy part of the house. Cinerarias also will now be generally throwing up their flowering stems, and as they are very thirsty plants, a good supply of water is indispensable, and care taken that they do not become covered with insects. Chinese Primroses, too, will now form a portion of the ornament of these houses; they always flourish best if placed near the glass, but too much light will soon cause the flowers to fall.

In the forcing-pit keep a good bottom-heat and plenty of atmospheric moisture. Plants which were introduced some time ago, will now be in flower. Others should be brought in to succeed them, amongst which may be mentioned the hardy American tribes, Roses, Azalea indica, and some stove plants, as Gardenias, Thunbergias, and Franciscеas. Also, where there is not a sufficient number of Verbenas, Heliotropes, and other half-hardy plants for bedding out in the summer, it is advisable to introduce some of these, that a sufficient number of cuttings may be put in early in the season.

In pits and frames keep out the frost with good night coverings, but expose the plants to the air as much as possible during the day. Remove all decayed aud decaying leaves, and keep the atmosphere as pure and healthy as possible.

In the open air prepare Ranunculus beds for planting in February. Examine Pink and Pansy beds, and if the frost has loosened or raised out of the ground any plants, let them again be fastened. Shelter Carnations from excessive wet weather. Make gravel walks and new beds in the flower garden, or renew the soil in old ones. Prepare ground for planting shrubs, and do anything else which the weather will permit to be done.

ERRATA.

In page 34, line 22 from the top, for *Pistaccia* read *Pistacia*.
,, 37, line 8 from the top, for *Calampalis* read *Calampelis*.
,, 46, at section 5, for *Lossal flowered* read *Tassel flowered*, and
,, 211, for *Limsia ancthifolia* read *Simsia anethifolia*.

GENERAL INDEX.

Abelia floribunda, 188, 238, 248
Acacia celastrifolia, 139
— linifolia, 238
— mœsta, 19
— squamata, 47
Acarus telarius, 95
Acclimatising tender plants, 33
Achimenes coccinea grandiflora, 214
— — ignea, 214
— — intermedia, 214
— — superba, 214
— cupreata, 117, 164
— patens variety, 142
— pyropæa, 238
— Skinneri, 238
— venusta, 214
Acineta Barkeri, 145
Acmadenia, 227
Aconitum autumnale, 64, 139, 262
Adenandra, 227
Æchmea discolor, 91, 164
Aerial system of forcing, 154, 253
Aerides, new species, 141
— odorata, 142
— virens, 93, 197
Æschynanthus longiflorus, 141, 190, 238
— miniatus, 262
— speciosus, 188, 199
Agalymea staminea, 272
Agathosma, 227
Agnostus sinuata, 1
Air-plant, dark-green leaved, 93, 197
Akebia quinata, 115
Allamanda cathartica, 88, 105, 142
— grandiflora, 89, 105
Almeidea, 223
Alsenosmia, 249
Amomum vitellinum, 213
Androsace lanuginosa, 50
— shaggy-leaved, 50
Anemone japonica, 25
Angophora cordifolia, 41
— lanceolata, 41
Angræcum funale, 91
Anguloa Clowesii variety, 164
Anigozanthus fuliginosus, 91
Ansellia Africana, 47
Aphelandra, 29
Aphides, 70
— prevalent in 1846, 176
Aphis cassiæ, 95
Apios tuberosa, 214
Approach of spring, 40
Aquilegia jucunda, 92
— leptoceras, 272
Argyrotosa Bergmanniana, 72
Arum, new species, 68
Aspasia lunata, 142
Aspidiotus Nerii, 95
— proteus, 95
Astelma eximium, 41
Asystasia coromandeliana, 125
— Coromandel, 125
Atragene japonica, 5
Aucuba japonica, 33
Azaleas, 47
— Chinese, 59
— Fielder's white, 117
— Indian, 59
— selection of, 63
— squamata, 64
— training and pruning, 136

Barosma, 227
Barred Yellow Moth, 167
Barringtonia racemosa, 40
— speciosa, 40
Barkeria Skinneri major, 262
Bee Carpenter, 71
— Upholsterer, 71
Begonia albo-coccinea, 133
— atrosanguinea, 133
— coccinea, 133
— fuchsioides, 64, 133, 217
— hydrocotylifolia, 133
— incarnata, 133
— manicata, 133
— odorata, 133
— valuable as winter flowerers, 133
— zebrina, 133
Berberis Fortuni, 65
— ilicifolia, 139
Bibio hortulanus, 168
Biebersteinia, 227
Bignonia æquinoctialis, 3
— Chamberlaynii, 3
— venusta, 261
Biston betularius, 167
Black Beetle, 70
Black Cloaked Moth, 72
Blatta orientalis, 70
Bletia, 93
— gebina, 272
Boenninghausenia, 227
Boilers, 11
Bolbophyllum Lobbii, 115
Boronia, 225
— triphylla, 68
Boronieæ, 225
Brass Beetle, 71
Brassia brachiata, 115
Brexia madagascariensis, 41
Bridesmaid Moth, 168
Browallia Jamesonii, 190
Brown Cloaked Moth, 72
Brownea coccinea, 40
— grandiceps, 40
Brugmansia sanguinea, 117
Brunsfelsia nitida jamaicensis, 92
Bryophyllum calycinum, 41

Bucku Plants, 227
Buddleya, Dr. Lindley's, 5
— Lindleyana, 5
Burlingtonia rigida, 68
Burtonia conferta, 42
Butea frondosa, 41
— superba, 41

Calanthe curculigoides, 65
Calceolaria amplexicaulis, 115
— spe. nov., 272
Calodendron capense, 42, 227
Calomeria, new species, 238
Caloscordum nerinefolium, 65
Calyptranthes, 46
Calystegia pubescens, 165
Camellia japonica, 68
— miniata, 169
— reticulata, 93
— value of, in winter, 137
Campanula lactiflora, 215
— nobilis, 19
Canarina campanula, 42
— lævigata, 42
Caprifolium, 249
Casque-wort, Bauers, 49
Catasetum serratum, 115
Cattleya bulbosa, 188
— citrina, 142, 190
— new species, 141
— Skinneri, 19
— superba, 142
Caybu Swa, 8
Cerasus japonica plena, 115
Cereus flowers, to prevent closing, 76
— grandiflorus Maynardi, 75
— Lady Maynard's great-flowered, 75
Cestrum aurantiacum, 77, 134
— berries poisonous, 77
— Bushmen's arrow-poison, 78
— macrophyllum, 78
— orange-flowered, 77
— roseum, 193
— tinctorium, berries of, used for ink, 78
— vennatum, 78
Cetonia aurata, 71
— stictica, 71
Characteristics of the seasons, 175
Chænostoma polyantha, 139
Chirita sinensis, 65, 243
— — syringing, injurious to, 243
Chironia glutinosa, 165
Choisya ternata, 225
Chorilæna, 225
Chrysanthemums, 44
— selection of, 46
Cinerarias, 135
Cleisostoma ionosmum, 164
— spicatum, 140
Clematis polypetala, 25
— tubulosa, 19, 31
Clerodendron, 16
— fragrans, 33
— squamatum, 33
Climbing stove plants, 84, 105
Cockchaffer, 71
Cockroach, 70
Coccus hesperidum, 95
— patellæformis, 95
— testudo, 95
Cœlogyne, early flowering, 7
— ochracea, 19
— præcox, 7
— speciosa, 92, 165
Coleonema, 227
Collania dulcis, 140
Colours of flowers, 161
Columnea aureo-nitens, 92
Conostephium pendulum, 212
Conradia floribunda, 238
Convolvulus heptaphyllus, 140
— Jalapa, 167
Corchorus japonicus, 33
Cordyline Rumphii, 65
Corræa, 225
— alba, 147
— brilliant, 147
— delicata, 147
— magnifica, 147
— new species, 47
— pulchella, 147
— roseo-alba, 147
— rubra, 147
— seedlings, 147
— viridiflora, 147
Criorhina narcissi, 168
Crocus, 66
— Byzantinus, 66
— chrysanthus, 66
— nivalis, 66
— Salzmannianus, 66
— Veluchensis, 66
Crowea, broad-leaved, 222
— latifolia, 222
— saligna, 42
Cuphea miniata 101
— vermilion-flowered, 101
Cusparieæ, 225
Cyananthus lobatus, 66
Cyanothamnus, 225
Cymbidium Mastersianum, 47
— pendulum, 142
Cyphia phyteuma, 42
Cyrtochilum, 141

Daphne Fortuni, 47, 66
Daviesia, new species, 117
Dean of Manchester's death, 144
Delphinium cæruleum grandiflorum, 165
Dendrobium anosmum, 93
— chrysotoxum, 164
— cretaceum,
— Egertoniæ, 164
— heterocarpum, 68
— Kuhlii, 213
— mesochlorum, 164
— new species, 66, 117
— speciosum, 47
— triadenium, 66
— Veitchianum, 115
Dianthus Hendersonianus, 126
Dictamneæ, 227
Dictamnus, 227
Didymeria, 225

Dielytra spectabilis, 66
Diervilla, 249
Diglottis, 223
Dillenia speciosa, 83
Diosma, 227
Dipladenia crassinoda, 107
— nobilis, 238
— splendens, 106
Diplolæna, 225
Dipteracanthus, 30
— scandens, 68, 92
Dove-plant, 146
Dryandra carduacea angustifolia, 188
Dysophylla, 271

Echinacea intermedia, 190
Echinocactus hexædrophorus, 164
— Williamsii, 92
Edgworthia chrysantha, 213
Electricity, 128
Emphytus fasciatus, 71
— nigricans, 71
Empleurum, 227
Epacris, new variety, 93
— Taunton hybrid, 195
— Tauntoniensis, 195
Epidendron plicatum, 140
— pumilum, 7
— pyriforme, 213
Eranthemum pulchellum, 134
— strictum, 171
Eria, species, new, 262
— convallarioides major, 272
Erica imperialis, 117
Eriostemon, 225
Eriobotrya japonica, 34
Erythrina Bidwilliana, 66, 213
Erythrochiton, 223
Escallonia organensis, 20
Esenbeckia febrifuga 225
— pilocarpoides, 225
Eucalyptus macrocarpa, 272
Euchætis, 227
Eudiosma, 227
Euphorbia jacquiniflora, 133
— splendens, 133
Euryale amazonica, 23
Exogonium purga, 227

Fagi—Kadsura—Akebi, 115
Floricultural notices, 22, 46, 65, 91, 115, 139, 164, 188, 213, 238, 262, 272
Flower-beds, arrangement of, 161
Flower-gardening, 158
Flowers of Cereus grandiflorus, to prevent closing, 76
Flowering of plants, 113
Foliage, functions of, 55
Forcing, äerial system of, 154
Forsythia viridissima, 67, 115, 188
Franciscea gracilis, 262
— hydrangeæformis, 68
Fraxinella, 227
Fuchsia, 23, 141
— serratifolia, 135

Galeandra Baueri, 49
Galipea, 224
Gardenia Fortuni, 117
— longistyla, 213
— malleifera, 140
Gases, 130
Gastrolobium villosum, 188
Geigera, 225
Gesnera macrantha purpurea 263
— zebrina, 135
Gloriosa superba, 109
— Leopoldiana, 273
Glory trees, 16
Gloxinia Fyfiana, 141
— albo-coccinea, 273
Glycosmis, 185
Goldfussia, 30
Gompholobium barbigerum, 221
— bearded keeled, 221
— new species, 117, 190
— splendens, 142
Gongora Bufonia leucochila, 92
Gracillaria anastamosanis, 168
Great Hook-tip Moth, 72
Greenhouse plants, acclimatising, 33
Gustavia augusta, 83
Gymnonychium, 227

Habrothamnus, cluster-flowered, 193
— corymbosus, 112
— elegans, 69, 193
— fasciculatus, 69, 112, 193
Hakea, 184
Haplophyllum, 227
Harpalyce fulvata, 167
Heat and light, 127, 128
Heaths, 135
Heating hothouses, 253
Heliophila pinnata, 219
— trifida, 20, 215, 219
Heliotropium hybridum Voltaireanum, 239
Henfreya scandens, 92, 140
Herbertia Drummondi, 186
Heterodendron, 228
Hibiscus moscheutos, 67
— palustris, 67
Hindsia longiflora, 142
— — alba, 142
Hints on Flower-gardening, 158
Hortia, 225
Houlletia, 117
Hoya campanulata, 118
Hugelia, 225
Hybrid Corræas, 147
Hybridization, 147
Hydrangea azisai, 165
— japonica variety, 141
Hylotoma pilicornis, 70
— rosæ, 71
Hypocyrta leucostoma, 164

Impatiens platypetala, 20
Indian Cress, showy, 173
Indigofera decora, 240
Insects infesting flowers, 167, 179
Ipomæa macrorhiza, 67
— muricata, 116
— pulchella, 140

Iris setosa, 67
— aurea, 272
Isopogon, 258
Ixia, new species, 215
Ixora coccinea, 41
— crocata, 41
— hydrangeæformis, 165
— Griffithii, 214
— Javanica, 215, 265

Jacquemontia canescens, 116
Justicia carnea, 23, 239
— Carthaginensis, 263
— coccinea, 134
— gangetica, 125
— new species, 93
— speciosa, 134

Karpaton hastatum, 249
King Leopold Phlox, 267

Lælia cinnabarina, 116
— majalis, 142
— superbiens, 47
Lagerstrœmia elegans, 209, 269
— general culture, 210
— grandiflora, 209
— indica, 209, 269
— parviflora, 209
— reginæ, 210
— speciosa, 210
Larpent's Lead-wort, 271
Leaves, functions of, 55
Leianthus, black-flowered, 149
— nigrescens, 149
Lemonia, showy, 224
— spectabilis, 224
Leschenaultia arcuata, 246
— culture of, 110
— oblata, 47
— splendens, 190, 245
Leucadendron argenteum, 63
Leucothoe pulchra, 188
Leycesteria formosa, 250
Liebigia speciosa, 188
Light and heat, 127
Lilac Beauty Moth, 168
Lilac Slender Moth, 168
Lilac tree, insects on, 168
Limax alba, 70
— agrestis, 70
Lime-water, 104
Limonia citrifolia, 183
Linnæa borealis, 250
Linum trigynum, 134
Liquid manures, 102
Lisianthus acutangulus, 214
— nigrescens, 150
Lobelia cælestis, 273
— braziliensis, 273
— fulgens multiflora, 260
— pyramidalis, 263
— Marryattæ, 263
Lonicera, 250
— discolor, 188
Lozotænia lævigana, 72
— operana, 72
Lozotænia rosana, 72
Lyda hortulana, 71
Lyonia jamaicensis, 20
Lysionotus longiflorus, 190

Macromeria exserta, 116
Macrostylis, 227
Magnetism, 128
Management of stove plants, 205
Management of tender plants, 205
Manettia bicolor, 135
Manures, liquid, 102
Marsdenia maculata, 116
Martynia fragrans, 38
Mastic tree, 34
Mealy bug, 95, 107
Medinilla speciosa, 214
Meek, Mr., death of, 155
— mode of heating, by, 155
Megachile centuncularis, 71
— ligniseca, 71
Megaclinium velutinum, 140
Melanthium triquetrum, 94
Melicope, 225
Melolontha vulgaris, 71
Mespilus japonica, 34
Meteorology and Temperature, 127
Metrodorea, 225
Meyenia fasciculata, 193
Microsetia ruficapitella, 71
— sericiella, 72
Mignonette, 135
Miltonia Clowesii, 239
— candida, 273
Monnieria, 225
Mormodes aromatica, 142
Moths injurious to flowers, 71, 168
Musa, 90
Myrtus, 34

Narcissus fly, 168
Nerium Oleander, 34
Nicotiana rustica, 201
— Tabacum, 201
Nymphæa, new species, 263
— Victoria, 23

Odontoglossum cuspidatum, 118
— grande labellum album, 273
— hastilabium, 20
— Warneri purpuratum, 92
Oleander, 34
Olive-green aphis, 96
Oncidium Barkeri, 97
— citrosmum, 142
— concolor, 118
— lacerum, 47
— Mr. Barker's, 97
— new species, 165, 215
Onobrychis radiata, 189
Operations for February, 23
— March, 48
— April, 69
— May, 94
— June, 119
— July, 143
— August, 166
— September, 191

Operations for October, 216
— November, 239
— December, 264
— January, 274
Ophrys arachnitis, 116
— ferrum equinum, 189
— fuciflora, 116
— tabanifera, 189
Orchids, culture of, 13
— season of repose, 230

Pachystigma, 227
Pæonia moutan, 33
— papaveracea, 33
Pancratium humile, 92
Passiflora alata, 151
— alato-cærulea, 153
— Buonapartea, 152
— cærulea, 153
— cæruleo-racemosa, 153
— coccinea, 152
— edulis, 152
— fragrans, 153
— incarnata, 152
— laurifolia, 152
— maliformis, 152
— kermesina, 153
— kermesina Lemicheziana, 151
— Lemichez's crimson, 151
— Loudonii, 153
— Middletoniana, 153
— Mooreana, 153
— phœnicea, 152
— picturata, 153
— princeps, 153
— quadrangularis, 152
— racemosa, 153
— sanguinea, 153
Passiflora serratistipula, 152
— tiliæfolia, 152
Passion flowers, bearing eatable fruit, 152
— — selection of beautiful, 153
Pelargoniums, 23, 131
Pentas carnea, 135
Pentstemon Gordoni, 189
— McEwani, 174
Pepper-moth on roses, 167
Pergularia campanulata, 27
Pericallia syringaria, 168
Peristeria Barkeri, 146
Petunia, new variety, 165
— spe. nov., 273
Phalænopsis amabilis, 116
— new variety, 263
Pharbitis cathartica, 92
Phebalium, 225
Philotheca, 225
Physianthus auricomus, 87
Phlox Leopoldiana, 267
Physostegia virginica, 215
Pigmy Moth, red-headed, 71
— satin, 72
Pilocarpeæ, 225
Pilocarpus, 225
Pink, Mr. Henderson's, 126
Pistacia Lentiscus, 34
Plants and plant houses, 205
Plants, fine, 165
— habits of, 229, 232
— hard-wooded, 232
— list of tender ones which have borne the open air, 36
— profuse flowering of, 113
— winter blooming, 131
— — repose of, 233, 251
Pleroma elegans, 215
Plumbago Larpentæ, 271
— new species, 21, 239
Poinciana pulcherrima, 134
Poinsettia pulcherrima, 134
Polmaise heating, 79, 82
Pomegranate, 34
Porphyrocoma lanceolata, 53
— lance-leaved, 53
Primula, Chinese, 135
— insects infesting, 168
— sinensis, 135
Pruning and training, 136
Pterophorus rhododactylus, 72
Pterostigma grandiflorum, 74
Pultenæa juncea, 123
Punica, 34
Puya Altensteinii gigantea, 189
Pyrus japonica, 33

Radiation, 130
Raphistemma, pretty, 27
— pulchellum, 27
Red-spider, 96
Renanthera matutina, 116
— coccinea, 273
Repose of plants, 229
Review of Mr. Paul's Rose-garden, 138
Rhododendron arboreum Paxtoni, 99
— Catawbiensis, 34
— fastuosum flore pleno, 118
— javanicum, 191
— Jenny Lind, 118
— maximum, 34
— metropolitanum, 118
— Mr. Paxton's Tree, 99
— new species, 118
— new variety, 142
— ponticum, 34
— pruning of, 136
Rigidella orthantha, 121
Rockeriis, 50
Rosa anemoneflora, 142
Rose, Alpine or Boursault, 168
Rose-chaffers, 71
— garden reviewed, 138
— insects infesting the, 167
— Leaf-roller Moth, 72
— perpetual, 162
— Plume Moth, 72
Ruellia coromandeliana, 125
— grandiflora, 30
— intrusa, 125
— large-leaved, 29
— longiflora, 30
— macrophylla, 29, 135
— obliqua, 125
— Purdieana, 116, 273
— secunda, 125

Ruellia, trivialis, 30
Rushbroom, leafless, 123
Ruta, 228
Rutaceæ, 222

Saccolabium guttatum, 142
— miniatum, 116
Salvia leucantha, 189
— new species, 94, 273
— patens, 23
Sambucus, 252
Satin Pigmy Moth, 72
Sauseviera fruticosa, 65
Saw-flies infesting Rose-trees, 71
Scale insects, 95
— black turtle, 95
— brown, 95
— brown limpet, 95
— small brown, 95,
— small white, 95
Schubertia graveolens, 87
Scilla bifolia, 100
— sibirica, 100
Scutellaria incarnata, 142
— Ventenatii, 20
Sea lavender, 254
Seasons, characteristics of, 175
Season of plants' repose, 229
Silver Arched Moth, 72
Silver tree, 63
Simsia anethifolia, 211
Siphocampylos microstoma, 92
Slugs, 70
Smooth oblique Bar Moth, 72
Sobralia macrantha splendens,190, 241
Solanum jasminoides, 140
— pseudo-capsicum, 263
Solar light, 128
Sophora juncea, 123
Spilonota aquana, 72
— cynostabella, 72
Spiræa prunifolia flore pleno, 69
— pubescens, 116, 189
Spiranthera, 225
Squill, Siberian, 100
— two-leaved, 100
Stanhopea tigrina, 142
Statice, 254
Stauntonia latifolia, 69
Stenanthera pinifolia, 89
Stenocarpus Cunninghamii, 1, 21
Stephanotis floribunda, 27, 85
— Red-spider on, 86
— Thouarsii, 86
Stiff-stalk, upright-flowered, 121
Stove-plants, repose of, 232
Street, Mr., on acclimatising, 35
Strobilanthes, 30
Stylidium, 162
Sunbeams, 128
Suncress, trifid, 219
Sun, the fountain of light, 129
Sun, the source of vitalising agencies, 128
Swainsonia Greyana, 21

Tellipogon obovatus, 116
Temperature and Meteorology, 127
Terminalia angustifolia, 65
Thea Bohea, 33
— viridis, 33
Thermometer in July, 1847, 178
Thibaudia pulcherrima, 140
Thrips adonidum, 70
— minutissima, 168
Ticorea, 225
Tiger-flower, Watkinson's shell, 51
Tigridia conchiflora, 51
— — Watkinsoni, 51
Tobacco, 201
Tobacco-paper, to prepare, 204
Torenia concolor, 21
Training and pruning, 136
Trechocorys adonidum, 95
Trichonemata Græca, 189
— pylium, 189
— subpalustre, 189
Triosteum, 250
Triphæna pronuba, 168
Tripetelus, 250
Tritonia aurea, 215
Tropæolum azureum, 118
— Lobbianum, 134
— showy, 142, 173, 214
— speciosum, 142, 173, 214
Trumpet-flower, Mr. Chamberlayne's, 3
Tulip-fly, 168

Valentiana, 250
Vanda Batemannii, 21
— cristata, 118, 141
Vanda teres, 142
— violacea, 141
Verbena 191
Viburnum, culture of, 250
— macrocephalum, 189
— new Species, 118
— plicatum, 914
Victoria cruziana, 23
— regia, 21
Viminaria denudata, 123
Violets, 135
Virgin's Bower, tubular-flowered, 31

Ward's Cases, 42
Weigela rosea, 67, 118, 247
— — Mr. Fortune's account of, 247
Windflower, Japanese, 25
Wing-point, large-flowered, 74
Winter, phenomena of, 9
— blooming plants, 131
— Management of plants, 233, 251
Woodlouse, 69

Zieria, 225

LONDON:
BRADBURY AND EVANS, PRINTERS, WHITEFRIARS.

LIBRARIES SMITHSONIAN INSTITUTION
LIBRARIES SMITHSONIAN INSTITUTI
LIBRARIES SMITHSONIAN INSTITUTION
LIBRARIES SMITHSONIAN INSTITUTI
LIBRARIES SMITHSONIAN INSTITUTION
LIBRARIES SMITHSONIAN INSTITUT
LIBRARIES SMITHSONIAN INSTITUTION
LIBRARIES SMITHSONIAN INSTITUT
LIBRARIES SMITHSONIAN INSTITUTION
LIBRARIES SMITHSONIAN INSTITUT

SMITHSONIAN INSTITUTION LIBRARIES

BOUND BY HM